YAMAHA

116

OWNER'S MANUAL

ROAD STAR

XV16AM(C)
XV16ATM(C)

LIT-11626-13-38

IMPORTANT MANUAL INFORMATION

Particularly important information is distinguished in this manual by the following notations:

⚠	The Safety Alert Symbol means ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED!
⚠ WARNING	Failure to follow WARNING instructions could result in severe injury or death to the motorcycle operator, a bystander or a person inspecting or repairing the motorcycle.
CAUTION:	A CAUTION indicates special precautions that must be taken to avoid damage to the motorcycle.
NOTE:	A NOTE provides key information to make procedures easier or clearer.

NOTE:

- This manual should be considered a permanent part of this motorcycle and should remain with it even if the motorcycle is subsequently sold.
- Yamaha continually seeks advancements in product design and quality. Therefore, while this manual contains the most current product information available at the time of printing, there may be minor discrepancies between your motorcycle and this manual. If there is any question concerning this manual, please consult your Yamaha dealer.

Congratulations on your purchase of the Yamaha Road Star™/Road Star™ Silverado™. This model is the result of Yamaha's vast experience in the production of fine sporting, touring, and pacesetting racing machines. It represents the high degree of craftsmanship and reliability that have made Yamaha a leader in these fields.

This manual will give you an understanding of the operation, inspection, and basic maintenance of this motorcycle. If you have any questions about the operation or maintenance of your motorcycle, please consult a Yamaha dealer.

The design and manufacture of this Yamaha motorcycle fully comply with the emissions standards for clean air applicable at the date of manufacture. Yamaha has met these standards without reducing the motorcycle's performance or economy of operation. To maintain these high standards, it is important that you and your dealer pay close attention to the recommended maintenance schedules and operating instructions contained within this manual.

⚠ WARNING

PLEASE READ THIS MANUAL AND THE "YOU AND YOUR MOTORCYCLE: RIDING TIPS" BOOKLET CAREFULLY AND COMPLETELY BEFORE OPERATING THIS MOTORCYCLE. DO NOT ATTEMPT TO OPERATE THIS MOTORCYCLE UNTIL YOU HAVE ATTAINED A SATISFACTORY KNOWLEDGE OF ITS CONTROLS AND OPERATING FEATURES AND UNTIL YOU HAVE BEEN TRAINED IN SAFE AND PROPER RIDING TECHNIQUES. REGULAR INSPECTIONS AND CAREFUL MAINTENANCE, ALONG WITH GOOD RIDING SKILLS, WILL ENSURE THAT YOU SAFELY ENJOY THE CAPABILITIES AND THE RELIABILITY OF THIS MOTORCYCLE.

IMPORTANT MANUAL INFORMATION

AFFIX DEALER

LABEL HERE

XV16AM(C)/XV16ATM(C)
OWNER'S MANUAL
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⚠ SAFETY INFORMATION

TWO-WHEELED MOTORCYCLES ARE SINGLE TRACK VEHICLES. THEIR SAFE USE AND OPERATION ARE DEPENDENT UPON THE USE OF PROPER RIDING TECHNIQUES AS WELL AS THE EXPERTISE OF THE OPERATOR. EVERY OPERATOR SHOULD KNOW THE FOLLOWING REQUIREMENTS BEFORE RIDING.

HE OR SHE SHOULD:

1. OBTAIN THOROUGH INSTRUCTIONS FROM A COMPETENT SOURCE ON ALL ASPECTS OF MOTORCYCLE OPERATION.
2. OBSERVE THE WARNINGS AND MAINTENANCE REQUIREMENTS IN THE OWNER'S MANUAL.
3. OBTAIN QUALIFIED TRAINING IN SAFE AND PROPER RIDING TECHNIQUES.
4. OBTAIN PROFESSIONAL TECHNICAL SERVICE AS INDICATED BY THE OWNER'S MANUAL AND/OR WHEN MADE NECESSARY BY MECHANICAL CONDITIONS.

Safe riding

1. Always make pre-operation checks. Careful checks may help prevent an accident.
2. This motorcycle is designed to carry the operator and a passenger.
3. The failure of motorists to detect and recognize motorcycles in traffic is the predominating cause of automobile/motorcycle accidents. Many accidents have been caused by an automobile driver who did not see the motorcycle. Making yourself conspicuous appears to be very effective in reducing the chance of this type of accident.

Therefore:

   a. Wear a brightly colored jacket.
   b. Use extra caution when you approach and pass through intersections, since intersections are the most likely places for motorcycle accidents.
   c. Ride where other motorists can see you. Avoid riding in another motorist's "blind spot".

4. Many accidents involve inexperienced operators. In fact, many operators who have been involved in accidents do not even have a current motorcycle license.
   a. Make sure you are qualified. Also, only lend your motorcycle to experienced operators.
   b. Know your skills and limits. Staying within your limits may help you to avoid an accident.
   c. We recommend that you practice riding your motorcycle where there is no traffic until you have become thoroughly familiar with your motorcycle and all of its controls.
5. Many motorcycle accidents have been caused by motorcycle operator errors. A typical error made by the operator is veering wide on a turn due to EXCESSIVE SPEED or undercornering (insufficient lean angle for the speed).
   a. Always obey the speed limits and never travel faster than warranted by road and traffic conditions.
   b. Always signal before turning or changing lanes. Make sure other motorists see you.
6. The operator's and passenger's posture are important for proper control.
   a. The operator should keep both hands on the handlebars and both feet on the operator footrests during operation to maintain control of the motorcycle.
   b. The passenger should always hold on to the operator, or the seat strap or grab bar if the motorcycle is so equipped, with both hands and keep both feet on the passenger footrests.
   c. Never carry a passenger unless he or she can firmly place both feet on the passenger footrests.
7. Never ride under the influence of alcohol or drugs.
8. This motorcycle is designed for on-road use only. It is not suitable for off-road use.

Protective apparel

The majority of fatalities from motorcycle accidents are the result of head injuries. The use of a safety helmet is the single most critical factor in the prevention or reduction of head injuries.

1. Always wear an approved helmet.
2. Wear a face shield or goggles. Wind on your unprotected eyes could contribute to an impairment of vision which could delay seeing a hazard.
3. The use of heavy boots, jacket, trousers, gloves, etc. is effective in preventing or reducing abrasions or lacerations.
4. Never wear loose fitting clothing. It could catch on the control levers, footrests, or wheels and cause injury or accident.
5. Never touch the engine or exhaust system during or after operation. They become very hot and can cause burns. Always wear protective clothing that covers your legs, ankles, and feet.
6. A passenger should also observe the above precautions.

Modification

Modifications made to the motorcycle not approved by Yamaha, or the removal of original equipment, may render your motorcycle unsafe for use and may cause severe personal injury. Modifications may also make your motorcycle illegal to use.

Loading and accessories

Adding accessories or cargo to your motorcycle can adversely affect stability and handling if the weight distribution of the machine is changed. To avoid the possibility of an accident, extreme caution should be used if adding cargo or accessories to your motorcycle. Use extra care if riding a motorcycle which has added cargo or accessories. Here are some general guidelines to follow if loading cargo or adding accessories to your motorcycle:

Loading

The total weight of the operator, passenger, accessories and cargo must not exceed the maximum load limit of XV16A(C): 432 lb. (196 kg)/XV16AT(C): 399 lb (181 kg).
When loading within these weight limits, keep the following in mind:

1. Cargo and accessory weight should be kept as low and close to the motorcycle as possible. Be sure to distribute the weight as evenly as possible on both sides of the machine to minimize imbalance or instability.
2. Shifting weights can create a sudden imbalance. Make sure that accessories and cargo are securely attached to the motorcycle before riding. Recheck accessory mounts and cargo restraints frequently.
3. Never attach any large or heavy items to the handlebars, front forks, or front fender. These items, including such cargo as sleeping bags, duffle bags, or tents, can create unstable handling or slow steering response.

Accessories

Genuine Yamaha accessories have been specifically designed for use on this motorcycle. Since Yamaha cannot test all other accessories which may be available, you must personally be responsible for the proper selection, installation and use of non-Yamaha accessories. You should use extreme caution when selecting and installing any accessories.
Keep in mind these guidelines for mounting accessories in addition to those provided under "LOADING".

1. Never install accessories or carry cargo that would impair the performance of your motorcycle. Carefully inspect the accessory before using it to make sure it does not in any way reduce ground clearance or cornering clearance, limit suspension travel, steering travel or control operation, or obscure lights or reflectors.

a. Accessories fitted to the handlebar or the front fork area can create instability due to improper weight distribution or aerodynamic changes. If accessories are added to the handlebar or front fork area, they must be as lightweight as possible and should be kept to a minimum.
b. Bulky or large accessories may seriously affect the stability of the motorcycle due to aerodynamic effects. Wind may attempt to lift the motorcycle, or the motorcycle may become unstable in cross winds. These accessories may also cause instability when being passed by or passing large vehicles.
c. Certain accessories can displace the operator from his or her normal riding position. This improper position limits the freedom of movement of the operator and may limit control ability. Therefore such accessories are not recommended.

2. Caution must be used if adding electrical accessories. If these accessories exceed the capacity of the motorcycle's electrical system, an electric failure could result, which could cause a dangerous loss of lights or engine power.

Gasoline and exhaust gas

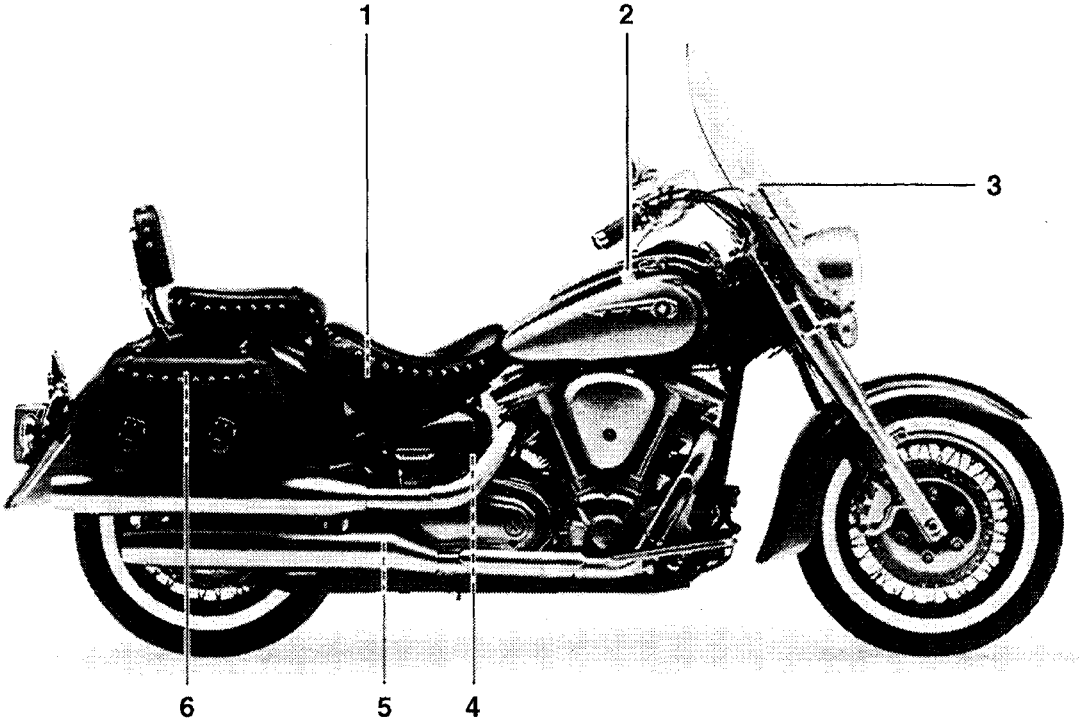
1. GASOLINE IS HIGHLY FLAMMABLE:
   a. Always turn off the engine when refueling.
   b. Take care not to spill any gasoline on the engine or exhaust system when refueling.
   c. Never refuel while smoking or in the vicinity of an open flame.
2. Never start the engine or let it run for any length of time in a closed area. The exhaust fumes are poisonous and may cause loss of consciousness and death within a short time. Always operate your motorcycle in an area that has adequate ventilation.
3. Always turn off the engine before leaving the motorcycle unattended and remove the ignition key. When parking the motorcycle, note the following:

a. The engine and exhaust system may be hot. Park the motorcycle in a place where pedestrians or children are not likely to touch these hot areas.
b. Do not park the motorcycle on a slope or soft ground; the motorcycle may fall over.
c. Do not park the motorcycle near a flammable source, e.g. a kerosene heater, or near an open flame. The motorcycle could catch fire.

4. When transporting the motorcycle in another vehicle, be sure it is kept upright and that the fuel cock is turned to "ON" or "RES" (for vacuum type) / "OFF" (for manual type). If it should lean over, gasoline may leak out of the carburetor or fuel tank.
5. If you should swallow any gasoline, inhale a lot of gasoline vapor, or allow gasoline to get in your eyes, see your doctor immediately. If any gasoline spills on your skin or clothing, immediately wash it off with soap and water and change your clothes.

Location of the important labels

Please read the following labels carefully before operating this motorcycle.



1

TIRE INFORMATION

Cold tire normal pressure should be set as follows.
- Up to 90 kg (198 lbs) load

FRONT : 250 kPa, (2.50 kgf/cm²), 36 psi
REAR : 250 kPa, (2.50 kgf/cm²), 36 psi
- 90 kg (198 lbs) ~ maximum load

FRONT : 250 kPa, (2.50 kgf/cm²), 36 psi
REAR : 280 kPa, (2.80 kgf/cm²), 41 psi

4NK-21668-A0

2

⚠ WARNING

- **BEFORE YOU OPERATE THIS VEHICLE, READ THE OWNER'S MANUAL AND ALL LABELS.**
- **ALWAYS WEAR AN APPROVED MOTORCYCLE HELMET,** eye protection, and protective clothing.

3MX-2118K-A0

XV16AT(C)

3

CAUTION

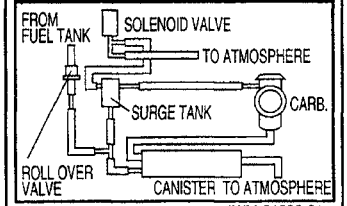
Cleaning with alkaline or acid cleaner, gasoline or solvent will damage windshield. Use neutral detergent.

YAMAHA 4NL-F835Y-00

California only

4

EMISSION HOSE ROUTING



4WM-21686-01

XV16AT(C)

5

⚠ WARNING

This unit contains high pressure nitrogen gas.
Mishandling can cause explosion.
- Read owner's manual for instructions.
- Do not incinerate, puncture or open.

YAMAHA 4AA-22259-00

6

⚠ WARNING

Improper loading can adversely affect handling.
- Do not exceed maximum load limit: 11 lb (5 kg) each saddlebag.
- Distribute weight evenly from side to side.
- Read the Owner's manual for important loading and tire pressure information.
- Total weight of rider, passenger, accessories, and cargo must not exceed the motorcycle load capacity shown in the Owner's Manual.
- Never ride above 80 mph (120 km/h) with saddlebags because handling could be affected. This maximum speed may be reduced by such factors as improper loading, poor tire or overall motorcycle conditions, poor road surfaces, or adverse weather conditions.

YAMAHA 4NL-F8466-00

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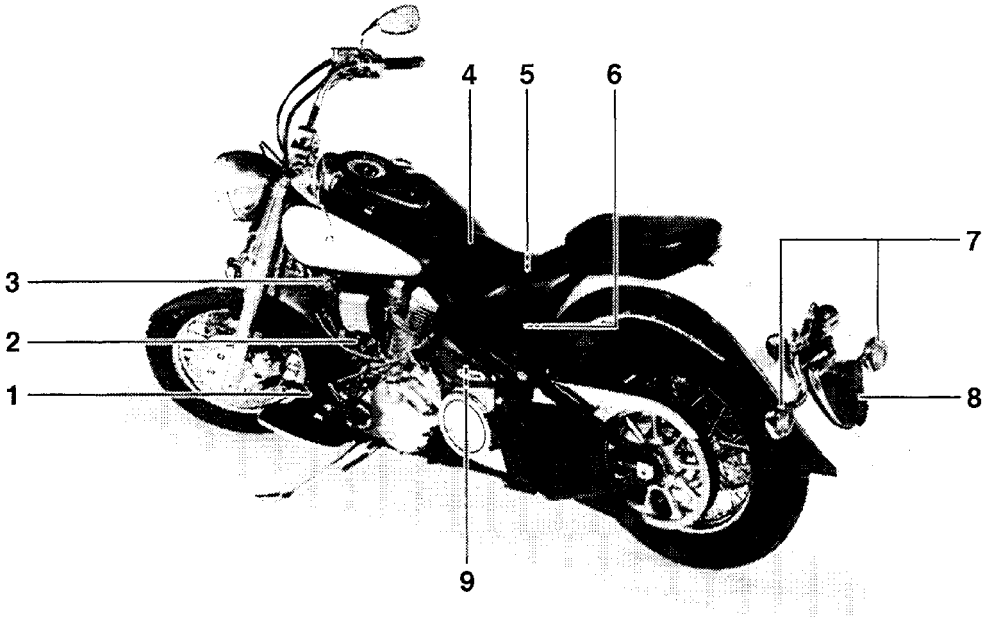
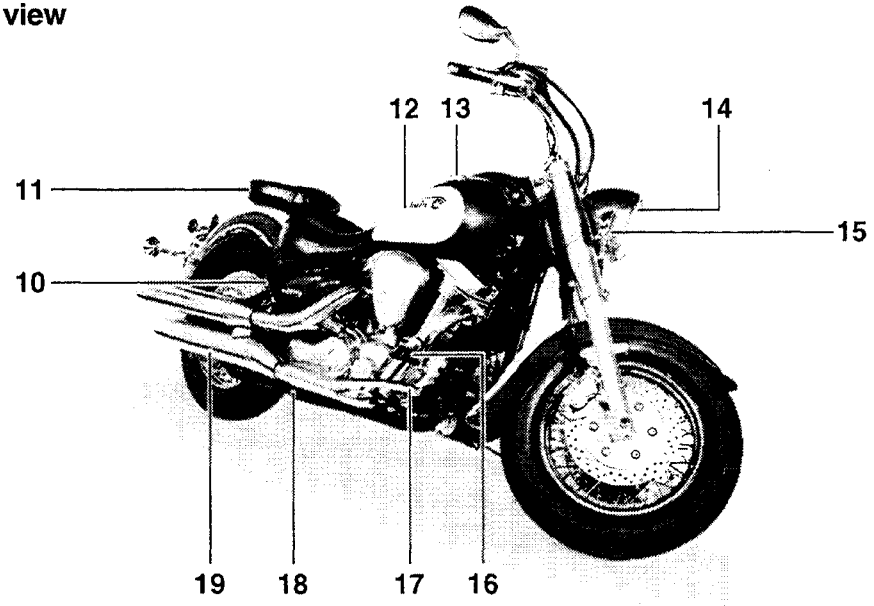
DESCRIPTION

Road Star™
XV16A(C) Left view



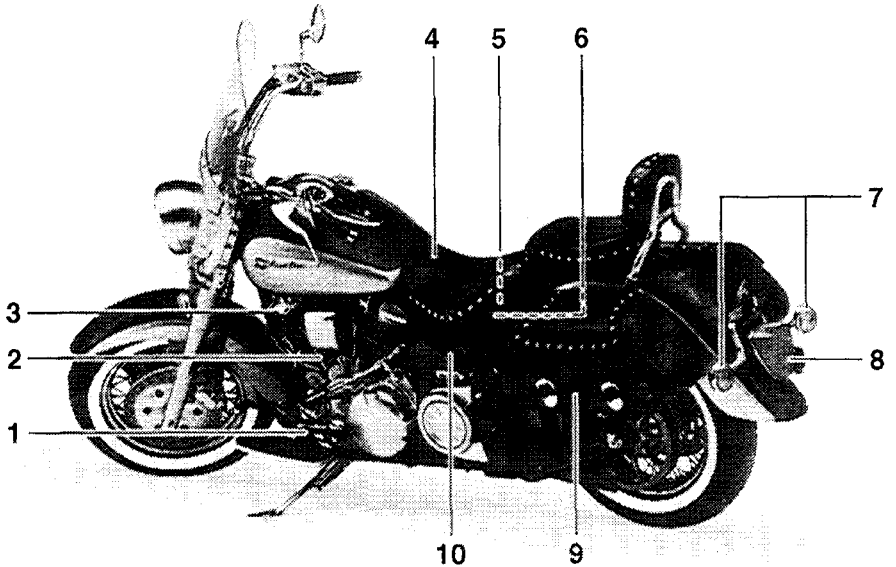
1. Shift pedal	(page 3-7)	6. Helmet holder	(page 3-12)
2. Starter (choke) knob	(page 3-11)	7. Rear turn signal lights	(page 6-32)
3. Fuel cock	(page 3-10)	8. Tail/brake light	(page 6-32)
4. Rider seat	(page 3-11)	9. Fuses	(page 6-29)
5. Tool kit	(page 6-2)		

Road Star™
XV16A(C) Right view



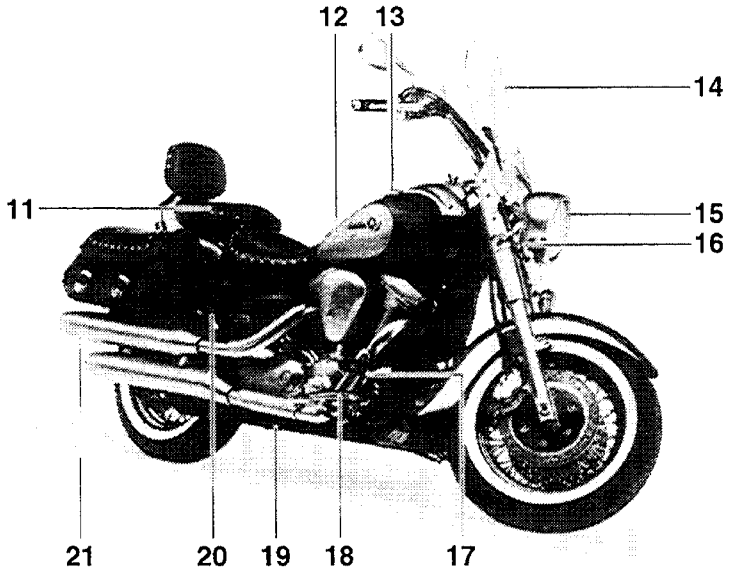
10. Passenger footrest
11. Passenger seat
12. Fuel tank (page 3-9)
13. Fuel tank cap (page 3-8)
14. Headlight (page 6-30)
15. Front turn signals/position lights (page 6-32)
16. Rear brake pedal (page 3-8)
17. Rider footrest
18. Rear shock absorber spring preload adjusting nut (page 3-15)
19. Muffler

Road Star™ Silverado™
XV16AT(C) Left view



1. Shift pedal	(page 3-7)	6. Helmet holder	(page 3-12)
2. Starter (choke) knob	(page 3-11)	7. Rear turn signal lights	(page 6-32)
3. Fuel cock	(page 3-10)	8. Tail/brake light	(page 6-32)
4. Rider seat	(page 3-11)	9. Saddlebag	(page 3-14)
5. Tool kit	(page 6-2)	10. Fuses	(page 6-29)

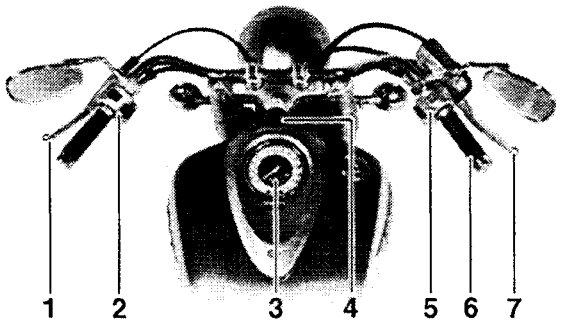
Road Star™ Silverado™
XV16AT(C) Right view



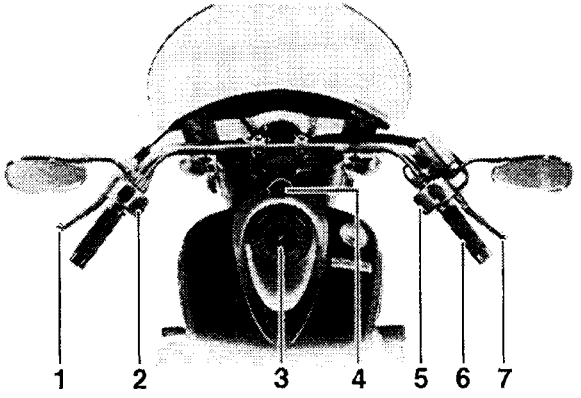
11. Passenger seat
12. Fuel tank (page 3-9)
13. Fuel tank cap (page 3-8)
14. Windshield (page 3-13)
15. Headlight (page 6-30)
16. Front turn signals/position lights (page 6-32)
17. Rear brake pedal (page 3-8)
18. Rider footrest
19. Rear shock absorber spring preload adjusting nut (page 3-15)
20. Passenger footrest
21. Muffler

Road Star™/Road Star™ Silverado™
XV16A(C)/XV16AT(C) Controls/Instruments

XV16A(C)



XV16AT(C)



1. Clutch lever (page 3-7)
2. Left handlebar switches (page 3-6)
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4. Main switch/steering lock (page 3-1)
5. Right handlebar switches (page 3-6)
6. Throttle grip (page 6-15)
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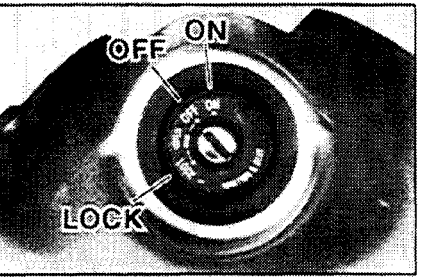
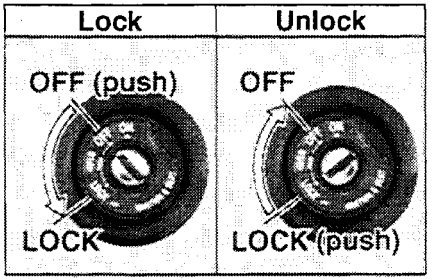
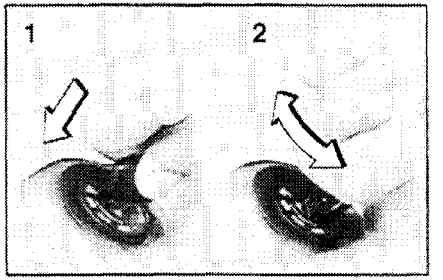






1. Push
2. Turn

Main switch/steering lock

The main switch controls the ignition and lighting systems. Its operation is described below.

ON

All electrical circuits are switched on, and the headlight, meter light, taillight, and front position lights come on. The engine can be started. The key cannot be removed in this position.

OFF

All electrical circuits are switched off. The key can be removed in this position.

LOCK

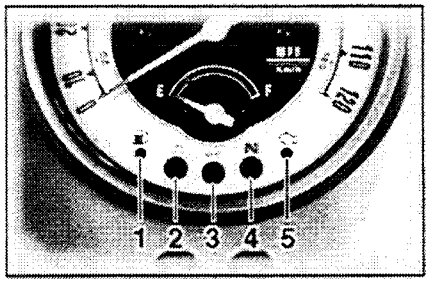
The steering is locked in this position and all electrical circuits are switched off. The key can be removed in this position.

To lock the steering, turn the handlebars all the way to the left. While pushing the key into the main switch, turn it from "OFF" to "LOCK" and remove it.

To release the lock, turn the key to "OFF" while pushing.

⚠ WARNING

Never turn the key to "OFF" or "LOCK" when the motorcycle is moving. The electrical circuits will be switched off which may result in loss of control or an accident. Be sure the motorcycle is stopped before turning the key to "OFF" or "LOCK".



Indicator lights

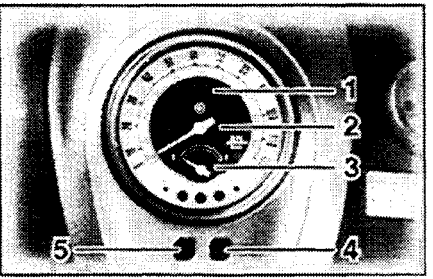
1. Fuel level indicator light " ⛽ "
When the fuel level drops below approximately 0.9 US gal (0.8 Imp gal, 3.5 L), this light will come on. When this light comes on, switch the fuel cock to "RES". Then, fill the tank at the first opportunity.

2. High beam indicator light " ≡D "
This indicator comes on when the headlight high beam is used.

3. Turn indicator light " ⇦ ⇨ "
This indicator flashes when the turn switch is moved to the left or right.

4. Neutral indicator light " N "
This indicator comes on when the transmission is in neutral.

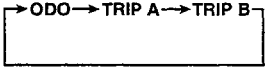
5. Engine trouble indicator light " 🔧 "
This indicator light will come on or flash if trouble occurs in a monitoring circuit. In such a case, take the motorcycle to a Yamaha dealer to have the self-diagnostic systems checked.



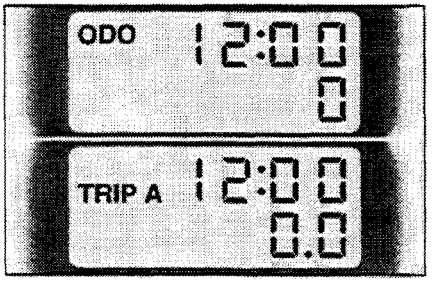
1. Odometer/tripmeter/clock
2. Speedometer
3. Fuel gauge
4. Set button
5. Mode button

Speedometer

This speedometer is equipped with an odometer and a twin trip meter. Pushing the mode button (left) will change the display from one mode to the other as follows.



In the odometer mode "ODO", the motorcycle's total mileage is displayed. In the trip meter modes "TRIP A" or "TRIP B", the motorcycle's mileage since the trip meter was last reset is displayed. Use the trip meter to estimate how far you can ride on a tank of fuel. This information will enable you to plan fuel stops in the future.



To reset the trip meter to 0, push the mode button (left) until "TRIP A" or "TRIP B" is displayed, then push the set button (right) and hold it down for at least one second.

NOTE:

This motorcycle does not have a tachometer. However, it is equipped with an engine revolution limiter, which prevents the engine revolution from exceeding approximately 4,400 r/min.

Fuel gauge

The fuel gauge indicates the quantity of the remaining gasoline in the tank. The gauge needle moves from "F" (Full) to "E" (Empty) as the fuel level decreases. When the needle moves to the "E" position, add fuel as soon as possible.

Diagnosis device

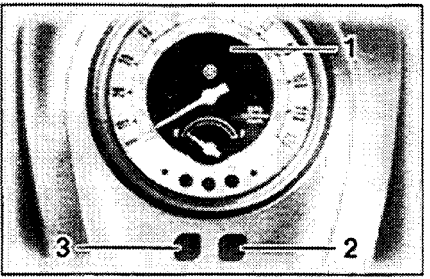
This model is equipped with a self-diagnosis device for the electrical circuits.

If some trouble should occur in a circuit, the engine trouble indicator light will come on or the fuel indicator light will start flashing.

To prevent engine damage, have your motorcycle serviced by a Yamaha dealer as soon as possible if either of these conditions occur.

CAUTION:

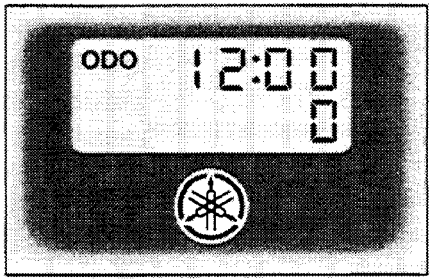
To prevent engine damage, be sure to consult a Yamaha dealer as soon as possible if this occurs.



1. Clock
2. Set button
3. Mode button

Digital clock

This digital clock always shows the time regardless of the main switch position.



Setting the clock

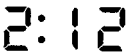
1. Turn the main switch to "ON".
2. Press both the set button (right) and the mode button (left) simultaneously until the hours and minutes flash.

3. Push the left button and only the hour display will flash.

4. Push the right button to change the hours.

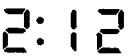
5. Push the left button and only the minute display will flash.

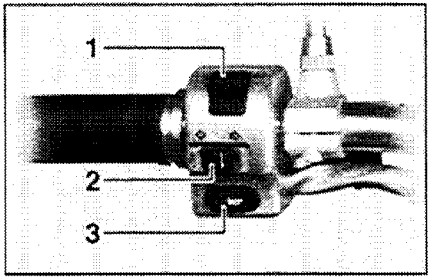
6. Push the right button to change the minutes.



7. Push the left button and both the hours and minutes will flash.

8. Push the right button for two seconds to set the clock.



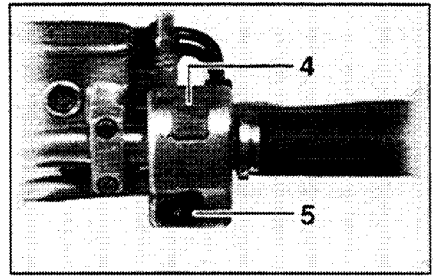


Handlebar switches

1. Dimmer switch
Turn the switch to "≣D" for the high beam and to "≣D" for the low beam.

2. Turn signal switch "⇦ ⇨"
This model is equipped with self-cancelling turn signals. To signal a right-hand turn, push the switch to the right. To signal a left-hand turn, push the switch to the left. Once the switch is released it will return to the center position. To cancel the signal, push the switch in after it has returned to the center position. If the switch is not cancelled by hand, it will self-cancel after the motorcycle has travelled at least 490 ft (150 m) and 15 seconds have passed. The self-cancelling mechanism only operates when the motorcycle is moving. Therefore the signal will not self-cancel while you are stopped at an intersection.

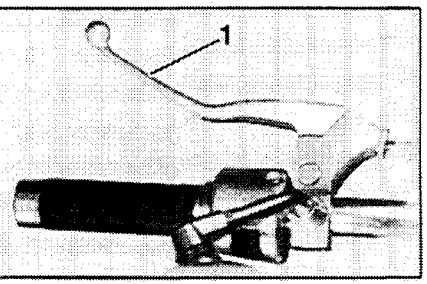
3. Horn switch "📯"
Press the switch to sound the horn.



4. Engine stop switch
The engine stop switch is a safety device for use in an emergency such as when the motorcycle overturns or if trouble occurs in the throttle system. Turn the switch to "○" to start the engine. In case of emergency, turn the switch to "⊗" to stop the engine.

5. Start switch "Ⓢ"
The starter motor cranks the engine when pushing the start switch.

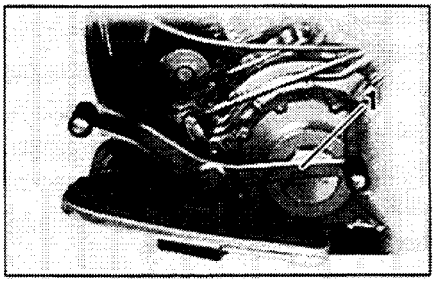
CAUTION:
See starting instructions prior to starting the engine.



1. Clutch lever

Clutch lever

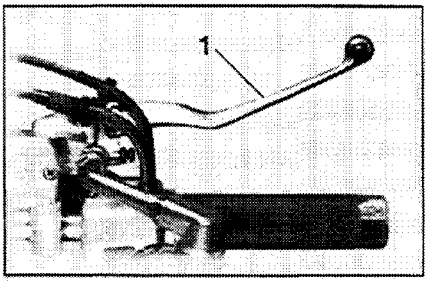
The clutch lever is located on the left handlebar, and the ignition circuit cut-off system is incorporated in the clutch lever holder. Pull the clutch lever to the handlebar to disengage the clutch, and release the lever to engage the clutch. The lever should be pulled rapidly and released slowly for smooth clutch operation. (Refer to the engine starting procedures for a description of the ignition circuit cut-off system.)



1. Shift pedal

Shift pedal

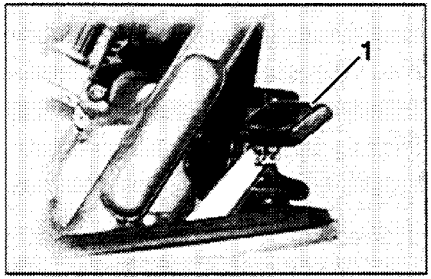
The shift pedal is located on the left side of the engine and is used in combination with the clutch when shifting. Use your toe or heel to shift up and your toe to shift down.



1. Front brake lever

Front brake lever

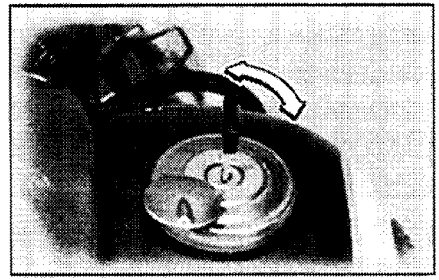
The front brake lever is located on the right handlebar. Pull it toward the handlebar to apply the front brake.



1. Rear brake pedal

Rear brake pedal

The rear brake pedal is on the right side of the motorcycle. Press down on the brake pedal to apply the rear brake.



Fuel tank cap

To remove

Slide the lock cover open, insert the key and turn it 1/4 turn clockwise. The lock will be released and the cap can be removed.

To install

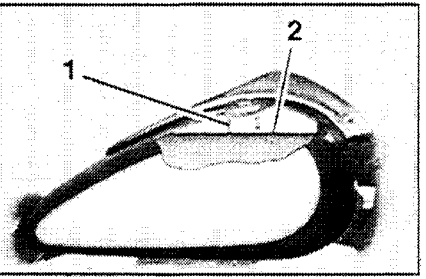
Make sure the arrow mark on the tank cap is facing forward, then push the tank cap into position. Turn the key counterclockwise to the original position and remove it. Close the lock cover.

NOTE:

This tank cap cannot be closed unless the key is in the lock. The key cannot be removed if the cap is not locked properly.

⚠ WARNING

Be sure the cap is properly installed and locked in place before riding the motorcycle.



1. Filler tube
2. Fuel level

Fuel

Make sure there is sufficient fuel in the tank. Fill the fuel tank to the bottom of the filler tube as shown in the illustration.

⚠ WARNING

Do not overfill the fuel tank. Avoid spilling fuel on the hot engine. Do not fill the fuel tank above the bottom of the filler tube or it may overflow when the fuel heats up later and expands.

CAUTION:

Always wipe off spilled fuel immediately with a dry and clean soft cloth. Fuel may deteriorate painted surfaces or plastic parts.

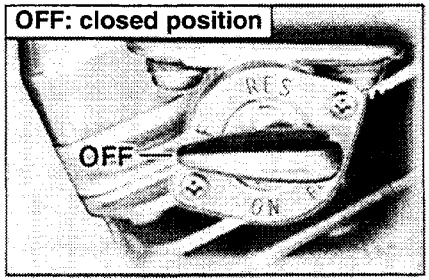
Recommended fuel:
UNLEADED FUEL
Fuel tank capacity:
Total:
5.3 US gal (4.4 Imp gal, 20 L)
Reserve:
0.9 US gal (0.8 Imp gal, 3.5 L)

Your Yamaha engine has been designed to use regular unleaded gasoline with a pump octane number ([R+M]/2) of 86 or higher, or research octane number of 91 or higher. If knocking or pinging occurs, use a different brand of gasoline or premium unleaded fuel. Unleaded fuel will give you longer spark plug life and reduced maintenance cost. If unleaded gasoline is not available, then leaded regular gasoline can be used.

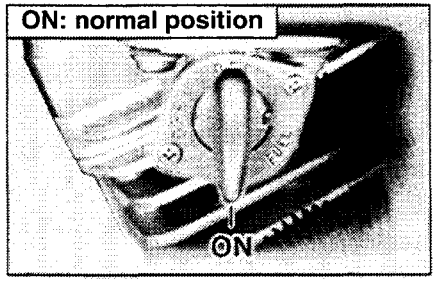
Gasohol

There are two types of gasohol; gasohol containing ethanol and that containing methanol. Gasohol containing ethanol can be used if ethanol content does not exceed 10%. Gasohol containing methanol is not recommended by Yamaha because it can cause fuel system damage or vehicle performance problems.

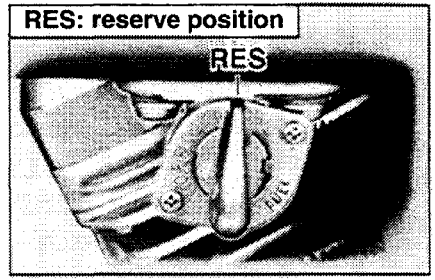
OFF: closed position



ON: normal position



RES: reserve position



Fuel cock

The fuel cock supplies fuel from the tank to the carburetor while filtering it also.

The fuel cock has three positions:

OFF

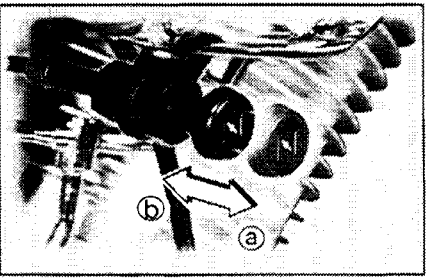
With the lever in this position, fuel will not flow. Always return the lever to this position when the engine is not running.

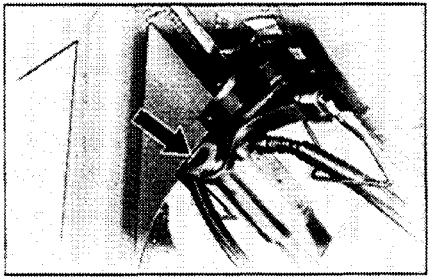
ON

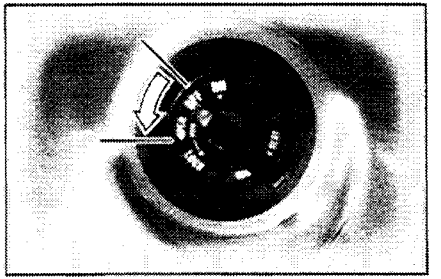
With the lever in this position, fuel flows to the carburetor. Normal riding is done with the lever in this position.

RES

This indicates reserve. If you run out of fuel while riding, move the lever to this position. Fill the tank at the first opportunity. Be sure to set the lever back to "ON" after refueling!







Starter (choke) knob

Starting a cold engine requires a richer air-fuel mixture, which is supplied by the starter (choke).

Move the knob in direction ⓐ to turn on the starter (choke).

Move the knob in direction ⓑ to turn off the starter (choke).

Steering lock

On the right side of the headpipe, there is a place to lock the steering with a padlock. Turn the handlebars to align the holes in the two brackets and lock the steering with a suitable padlock.

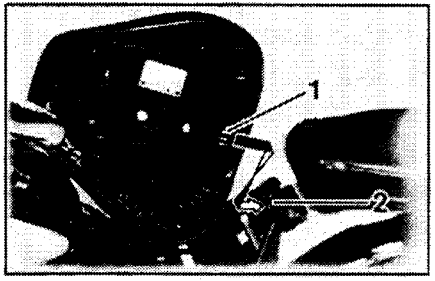
Rider seat

To remove

Insert the key into the main switch and turn it counterclockwise to the "OPEN" position. Then, remove the seat by pulling it upward.

NOTE:

Do not push inward when turning the key.



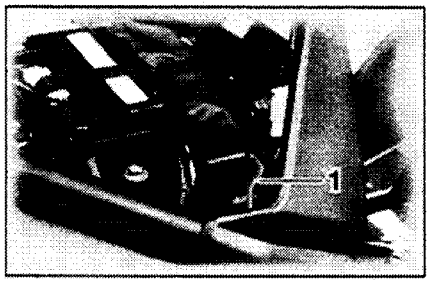
1. Projection
2. Seat holder

To install

Insert the projection on the rear of the seat into the holder, then push the front of the seat downward until it locks and remove the key from the main switch.

NOTE:

Make sure the seat is securely installed before riding the motorcycle.



1. Helmet holder

Helmet holder

The helmet holder is located under the rider seat.

Remove the rider seat and hook the helmet on the helmet holder. Then, install the seat. (See page 3-11 for rider seat removal and installation procedures.)

⚠ WARNING

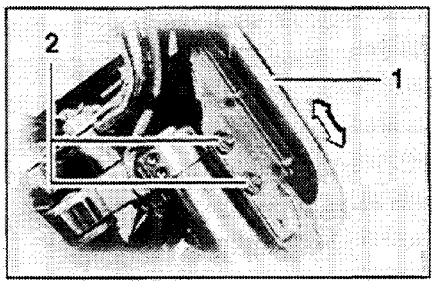
Never ride with a helmet in the helmet holder. The helmet may hit objects, causing loss of control and possibly an accident.

Windshield [XV16AT(C)]

The windshield height and angle can be adjusted to suit the rider's preference.

⚠ WARNING

- **Tighten the windshield bolts securely after adjustment.**
- **After adjusting, turn the handlebars to the left and right making sure there is no obstruction and that the windshield does not contact any other parts, etc.**
- **Open the throttle and make sure it returns properly when released. Otherwise an accident or injury could result.**



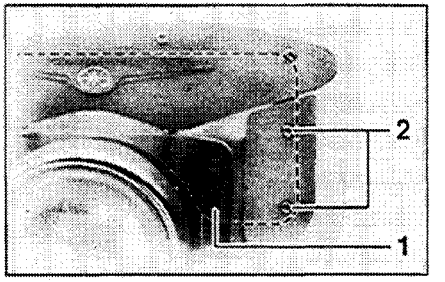
1. Windshield
2. Bolt (× 4)

Angle adjustment

Loosen the bolts on each side of the windshield. Move the windshield to the desired position, then be sure to tighten the bolts to the specified torque.

Height adjustment

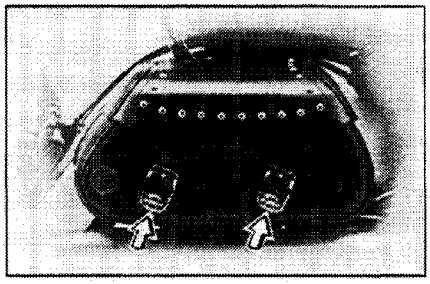
There are two height positions.
To change the height:

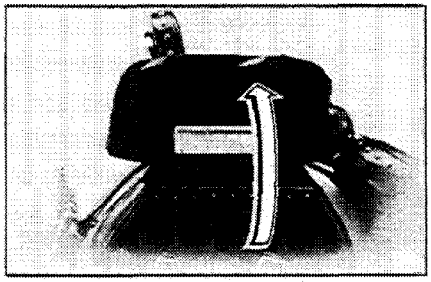


1. Headlight cover
2. Screw (× 4)

1. Remove the bolts on each side of the windshield. Move the windshield to the desired position and reinstall the bolts. Be sure to tighten the bolts to the specified torque.
2. Loosen the screws which hold the headlight cover. Position the cover so it will fit close to the headlight without touching it. Retighten the screws.

Tightening torque:
Windshield bolts:
12 ft·lb (1.6 m·kg, 16 Nm)





Saddlebags [XV16AT(C)]

To open

Unbuckle the belts and fold up the flap.

To close

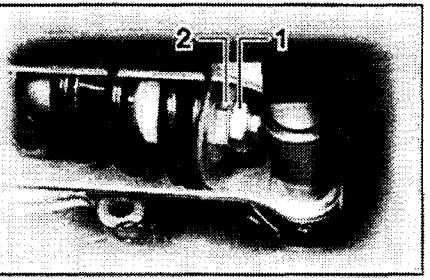
Fold the flap down and buckle both belts securely.

NOTE:

For saddlebag cleaning and care, see page 7-3.

⚠ WARNING

- **Always be sure to close and lock each saddlebag securely before operating the motorcycle.**
- **Distribute weight evenly on each side of the motorcycle.**
- **Never exceed the maximum loading limit of 11 lb (5 kg) in each saddlebag. Improper loading or overloading can cause vehicle handling problems leading to an accident or personal injury.**

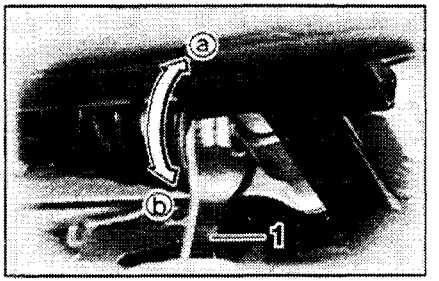


1. Locknut
2. Adjusting nut

Adjusting rear shock absorber preload

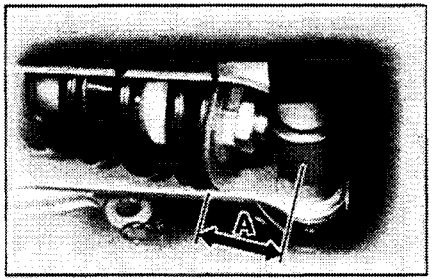
This shock absorber is equipped with a spring preload adjusting nut. Use the special wrench located in the owner's tool kit to adjust the spring preload.

1. Loosen the locknut.



1. Special wrench

2. Turn the adjusting nut in direction ⓐ to increase spring preload and in direction ⓑ to decrease spring preload. The spring preload is determined by the spring set length.
   Shortening the spring set length increases spring preload, lengthening the spring set length decreases spring preload.



A. Distance "A"

Spring preload:
- Standard:
  - XV16A
    - Distance "A" = 1.67 in (42.5 mm)
  - XV16AT
    - Distance "A" = 1.79 in (45.5 mm)
- Minimum (soft):
  - Distance "A" = 1.67 in (42.5 mm)
- Maximum (hard):
  - Distance "A" = 2.02 in (51.5 mm)

CAUTION:

Never attempt to turn an adjuster beyond the maximum or minimum setting.

3. Tighten the locknut to the specified torque.

Tightening torque:
Locknut:
25 ft·lb (3.5 m·kg, 35 Nm)

CAUTION:

Always tighten the locknut against the spring adjusting nut and tighten the locknut to the specified torque.

⚠ WARNING

This shock absorber contains highly pressurized nitrogen gas. Read and understand the following information before handling the shock absorber. The manufacturer cannot be held responsible for property damage or personal injury that may result from improper handling.

- **Do not tamper with or attempt to open the cylinder assembly.**
- **Do not subject the shock absorber to an open flame or other high heat source. This may cause the unit to explode due to excessive gas pressure.**
- **Do not deform or damage the cylinder in any way. Cylinder damage will result in poor damping performance.**
- **Take your shock absorber to a Yamaha dealer for any service.**

Sidestand

This model is equipped with an ignition circuit cut-off system. The motorcycle must not be ridden when the sidestand is down. The sidestand is located on the left side of the frame. (Refer to page 5-1 for an explanation of this system.)

⚠ WARNING

This motorcycle must not be operated with the sidestand in the down position. If the stand is not properly retracted, it could contact the ground and distract the operator, resulting in a possible loss of control. Yamaha has designed into this motorcycle a lockout system to assist the operator in fulfilling the responsibility of retracting the sidestand. Please check carefully the operating instructions listed below and if there is any indication of a malfunction, return the motorcycle to a Yamaha dealer immediately for repair.

Sidestand/clutch switch operation check

Check the operation of the sidestand switch and clutch switch against the information below.

TURN THE MAIN SWITCH TO "ON" AND THE ENGINE STOP SWITCH TO "○".

↓

TRANSMISSION IS IN GEAR AND SIDESTAND IS UP.

↓

PULL IN CLUTCH LEVER AND PUSH THE START SWITCH.

↓

ENGINE WILL START.

↓

CLUTCH SWITCH IS OK.

↓

SIDESTAND IS DOWN.

↓

ENGINE WILL STALL.

↓

SIDESTAND SWITCH IS OK.

⚠ WARNING

If improper operation is noted, consult a Yamaha dealer immediately.

Pre-operation check list..... 4-1

PRE-OPERATION CHECKS

Owners are personally responsible for their vehicle's condition. Your motorcycle's vital functions can start to deteriorate quickly and unexpectedly, even if it remains unused (for instance, if it is exposed to the elements). Any damage, fluid leak or loss of tire pressure could have serious consequences. Therefore, it is very important that, in addition to a thorough visual inspection, you check the following points before each ride.

PRE-OPERATION CHECK LIST

ITEM	CHECKS	PAGE
Front brake	• Check operation, fluid level and vehicle for fluid leakage. • Fill with DOT 4 brake fluid if necessary.	6-19 ~ 6-23
Rear brake	• Check operation, fluid level and vehicle for fluid leakage. • Fill with DOT 4 brake fluid if necessary.	
Clutch	• Check operation, condition and free play. • Adjust if necessary.	6-19
Throttle grip and housing	• Check for smooth operation. • Lubricate if necessary.	6-15
Engine oil	• Check oil level. • Fill with oil if necessary.	6-9 ~ 6-11
Wheels and tires	• Check tire pressure, wear, damage and spoke tightness. • Tighten spokes if necessary.	6-16 ~ 6-18
Brake and shift pedal shafts	• Check for smooth operation. • Lubricate if necessary.	6-25
Brake and clutch lever pivots	• Check for smooth operation. • Lubricate if necessary.	6-25
Sidestand pivot	• Check for smooth operation. • Lubricate if necessary.	6-26
Chassis fasteners	• Make sure that all nuts, bolts and screws are properly tightened. • Tighten if necessary.	—

ITEM	CHECKS	PAGE
Fuel	• Check fuel level. • Fill with fuel if necessary.	3-8 ~ 3-9
Lights, signals and switches	• Check for proper operation.	6-30 ~ 6-32

NOTE:

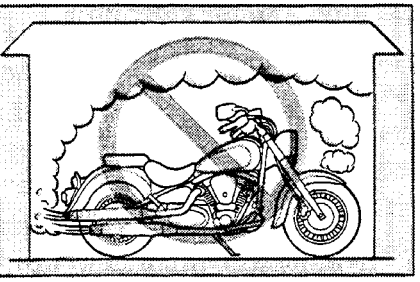
Pre-operation checks should be made each time the motorcycle is used. Such an inspection can be thoroughly accomplished in a very short time; and the added safety it assures is more than worth the time involved.

⚠ WARNING

- **If any item in the PRE-OPERATION CHECK is not working properly, have it inspected and repaired before operating the motorcycle.**
- **The engine and exhaust system will be very hot after the engine has been run. Be careful not to touch them or to allow any clothing item to contact them during inspection or repair.**

OPERATION AND IMPORTANT RIDING POINTS

Starting and warming up a cold engine 5-1
Starting a warm engine 5-4
Shifting 5-4
To start out and accelerate 5-5
To decelerate 5-5
Recommended shift points 5-5
Engine break-in 5-6
Parking 5-7



⚠ WARNING

- **Before riding this motorcycle, become thoroughly familiar with all operating controls and their functions. Consult a Yamaha dealer regarding any control or function that you do not thoroughly understand.**
- **Never start your engine or let it run for any length of time in a closed area. The exhaust fumes are poisonous and can cause loss of consciousness and death within a short time. Always operate your motorcycle in an area with adequate ventilation.**
- **Before starting out, always be sure the sidestand is up. Failure to retract the sidestand completely can result in a serious accident when you try to turn a corner.**

CAUTION:

- **Be careful where you store personal items on the motorcycle. Avoid blocking the air cleaner intake or performance will suffer.**
- **Be careful not to put anything near the battery and its terminals. Electrical failure and acid corrosion may result.**

Starting and warming up a cold engine

NOTE:

This motorcycle is equipped with an ignition circuit cut-off system.

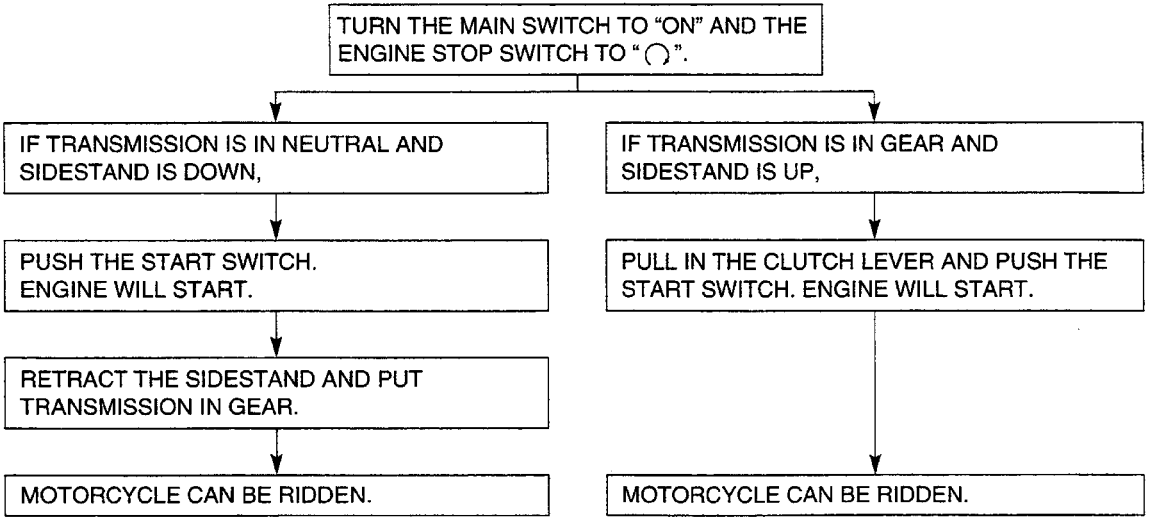
The engine can be started only under one of the following conditions:

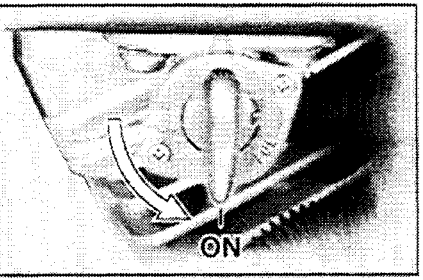
- The transmission is in neutral.
- The sidestand is up, the transmission is in gear and the clutch is disengaged.

The motorcycle must not be ridden when the sidestand is down.

⚠ WARNING

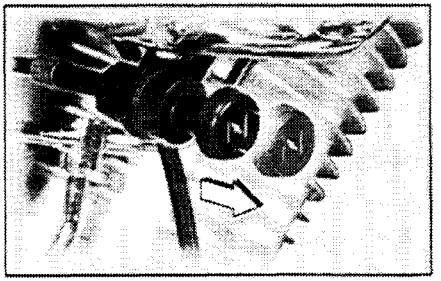
Before going through the following steps, check the function of the sidestand switch and clutch switch. (Refer to page 3-17.)


TURN THE MAIN SWITCH TO "ON" AND THE ENGINE STOP SWITCH TO "○".
IF TRANSMISSION IS IN NEUTRAL AND SIDESTAND IS DOWN,
PUSH THE START SWITCH. ENGINE WILL START.
RETRACT THE SIDESTAND AND PUT TRANSMISSION IN GEAR.
MOTORCYCLE CAN BE RIDDEN.
IF TRANSMISSION IS IN GEAR AND SIDESTAND IS UP,
PULL IN THE CLUTCH LEVER AND PUSH THE START SWITCH. ENGINE WILL START.
MOTORCYCLE CAN BE RIDDEN.



1. Turn the fuel cock to "ON".
2. Turn the main switch to "ON" and the engine stop switch to "○".
3. Shift transmission into neutral.

NOTE:
When the transmission is in neutral, the neutral indicator light should be on. If the light does not come on, ask a Yamaha dealer to inspect it.



4. Turn on the starter (choke) and completely close the throttle grip.
5. Start the engine by pushing the start switch.

NOTE:
If the engine fails to start, release the start switch, wait a few seconds, then try again. Each attempt should be as short as possible to preserve the battery. Do not crank the engine more than 10 seconds on any one attempt.

6. After starting the engine, turn off the starter (choke). The starter operation periods differ with the ambient temperature, so refer to the following notes.

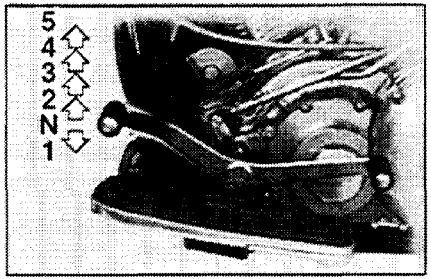
NOTE:
- The starter (choke) should be turned off when the engine is warm. The engine is warm when it responds normally to the throttle with the starter (choke) turned off. How long the starter (choke) should remain on depends upon the ambient temperature. Warm ambient temperatures (above 50 °F/10 °C) require about 7 seconds of starter (choke) use. Cold ambient temperatures (below 50 °F/10 °C) require about 35 seconds with the starter (choke) turned on, then about 2.5 minutes with the starter (choke) in the halfway position. To avoid the possibility of excessive exhaust emissions, never leave the starter (choke) on longer than necessary.
- For maximum engine life, always warm up the engine before starting off. Never accelerate hard with a cold engine.

Starting a warm engine

The starter (choke) is not required when the engine is warm.

CAUTION:

See the "Engine break-in" section prior to operating the motorcycle for the first time.



Shifting

The transmission lets you control the amount of power you have available at a given speed for starting, accelerating, climbing hills, etc. The use of the shift pedal is shown in the illustration.

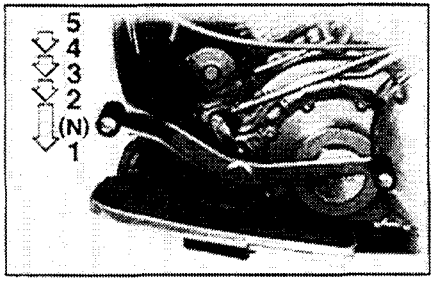
To shift into neutral, depress the shift pedal repeatedly until it reaches the end of its travel, then raise the pedal slightly.

CAUTION:

- **Do not coast for long periods with the engine off, and do not tow the motorcycle a long distance. Even with gears in neutral, the transmission is only properly lubricated when the engine is running. Inadequate lubrication may damage the transmission.**
- **Always use the clutch when changing gears. The engine, transmission, and driveline are not designed to withstand the shock of forced shifting and can be damaged by shifting without using the clutch.**

To start out and accelerate

1. Pull the clutch lever to disengage the clutch.
2. Shift into first gear. The neutral indicator light should go out.
3. Open the throttle gradually, and at the same time, release the clutch lever slowly.
4. At the recommended shift points shown in the table, close the throttle, and at the same time, quickly pull in the clutch lever.
5. Shift into second gear. (Be careful not to shift into neutral.)
6. Open the throttle part way and gradually release the clutch lever.
7. Follow the same procedure when shifting to the next higher gear. Always shift gears at the recommended shift points.



To decelerate

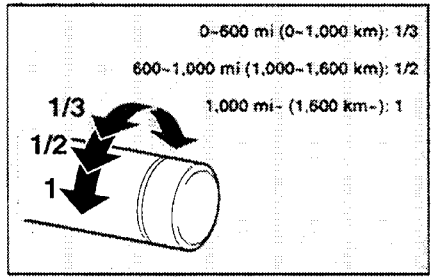
1. Apply both the front and the rear brakes at the same time to slow the motorcycle.
2. When the motorcycle reaches 16 mi/h (25 km/h), shift into first gear. Any time the engine is about to stall or runs very roughly, pull in the clutch and use the brakes to stop.
3. When the motorcycle is almost completely stopped, shift into neutral. The neutral indicator light should come on.

Recommended shift points

	Acceleration shift point mi/h (km/h)	Deceleration shift point mi/h (km/h)
1st → 2nd	13 (20)	16 (25)
2nd → 3rd	19 (30)	16 (25)
3rd → 4th	25 (40)	16 (25)
4th → 5th	31 (50)	16 (25)

Engine break-in

There is never a more important period in the life of your motorcycle than the period between zero and 1,000 mi (1,600 km). For this reason we ask that you carefully read the following material. Because the engine is brand new, you must not put an excessive load on it for the first 1,000 mi (1,600 km). The various parts in the engine wear and polish themselves to the correct operating clearances. During this period, prolonged full throttle operation, or any condition which might result in excessive heating of the engine, must be avoided.



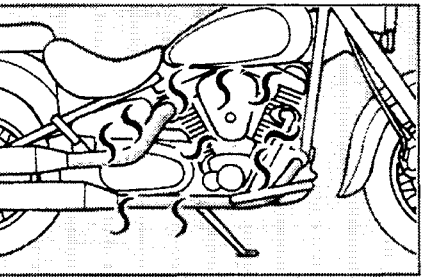
0 ~ 600 mi (0 ~ 1,000 km)
Avoid operation above 1/3 throttle.

600 ~ 1,000 mi (1,000 ~ 1,600 km)
Avoid cruising speeds in excess of 1/2 throttle.

CAUTION:
After 600 mi (1,000 km) of operation, be sure to replace the engine oil, oil filter and transfer case oil.

1,000 mi (1,600 km) and beyond
Proceed with normal riding.

CAUTION:
If any engine trouble should occur during the break-in period, consult a Yamaha dealer immediately.



Parking

When parking the motorcycle, stop the engine and remove the ignition key. Turn the fuel cock to "OFF" whenever stopping the engine.

⚠ WARNING

The exhaust system is hot. Park the motorcycle in a place where pedestrians or children are not likely to touch the motorcycle. Do not park the motorcycle on a slope or soft ground; the motorcycle may overturn.

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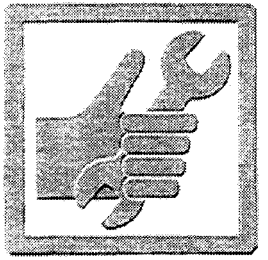
PERIODIC MAINTENANCE AND MINOR REPAIR

Periodic inspection, adjustment, and lubrication will keep your motorcycle in the safest and most efficient condition possible. Safety is an obligation of the motorcycle owner. The most important points of motorcycle inspection, adjustment, and lubrication are explained in the following pages.

Maintenance, replacement, or repair of the emission control devices and systems may be performed by any repair establishment or individual that is certified (if applicable).

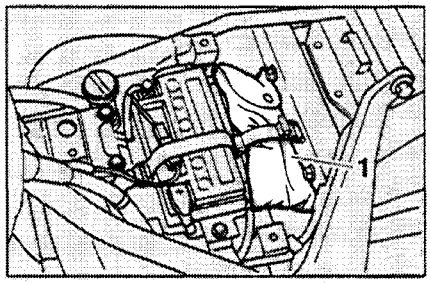
⚠ WARNING

If you are not familiar with motorcycle service, this work should be done by a Yamaha dealer.



PERIODIC MAINTENANCE

PROPER PERIODIC MAINTENANCE OF YOUR MOTORCYCLE IS IMPORTANT IN ORDER TO ENJOY LONG, PLEASURABLE SERVICE. ESPECIALLY IMPORTANT ARE THE MAINTENANCE SERVICES RELATED TO EMISSIONS CONTROL. THESE CONTROLS NOT ONLY FUNCTION TO ENSURE CLEANER AIR BUT ARE ALSO VITAL TO PROPER ENGINE OPERATION AND MAXIMUM PERFORMANCE. IN THE FOLLOWING TABLES OF PERIODIC MAINTENANCE, THE SERVICES RELATED TO EMISSIONS CONTROL ARE GROUPED SEPARATELY. THESE SERVICES REQUIRE SPECIALIZED DATA, KNOWLEDGE, AND EQUIPMENT. YAMAHA DEALERS ARE TRAINED AND EQUIPPED TO PERFORM THESE PARTICULAR SERVICES.



1. Tool kit

Tool kit

The tool kit is located under the rider seat. (See page 3-11 for rider seat removal and installation procedures.) The tools provided in the owner's tool kit are to assist you in the performance of periodic maintenance. However, some other tools such as a torque wrench are also necessary to perform the maintenance correctly.

The service information included in this manual is intended to provide you, the owner, with the necessary information for completing some of your own preventive maintenance and minor repairs.

NOTE:

If you do not have necessary tools required during a service operation, take your motorcycle to a Yamaha dealer for service.

⚠ WARNING

Modifications to this motorcycle not approved by Yamaha may cause loss of performance, excessive emissions, and render it unsafe for use. Consult a Yamaha dealer before attempting any changes.

PERIODIC MAINTENANCE CHART FOR EMISSION CONTROL SYSTEM

No.		ITEM	ROUTINE	INITIAL	ODOMETER READINGS				
				600 mi (1,000 km) or 1 month	4,000 mi (7,000 km) or 6 months	8,000 mi (13,000 km) or 12 months	12,000 mi (19,000 km) or 18 months	16,000 mi (25,000 km) or 24 months	20,000 mi (31,000 km) or 30 months
1	*	**Valve clearance**	• Check valve clearance when engine is cold. • Adjust if necessary.	**Every 16,000 mi (25,000 km)**					
2		**Spark plug**	• Check condition. • Adjust gap and clean. • Replace at 8,000 mi (13,000 km) or 12 months and thereafter every 8,000 mi (13,000 km) or 12 months.		√	**Replace**	√	**Replace**	√
3	*	**Crankcase ventilation system**	• Check ventilation hose for cracks or damage. • Replace if necessary.		√	√	√	√	√
4	*	**Fuel line**	• Check fuel hose for cracks or damage. • Replace if necessary.		√	√	√	√	√
5	*	**Fuel filter**	• Replace initial 20,000 mi (31,000 km) or 30 months and thereafter every 20,000 mi (31,000 km) or 30 months.						**Replace**
6	*	**Exhaust system**	• Check for leakage. • Retighten if necessary. • Replace gasket(s) if necessary.		√	√	√	√	√
7	*	**Idle speed**	• Check and adjust engine idle speed. • Adjust cable free play.	√	√	√	√	√	√
8	*	**Evaporative Emission control system (For California only)**	• Check control system for damage. • Replace if necessary.				√		√

* Since these items require special tools, data and technical skills, they should be serviced by a Yamaha dealer.

GENERAL MAINTENANCE AND LUBRICATION CHART

No.		ITEM	ROUTINE	TYPE	INITIAL	ODOMETER READINGS				
					600 mi (1,000 km) or 1 month	4,000 mi (7,000 km) or 6 months	8,000 mi (13,000 km) or 12 months	12,000 mi (19,000 km) or 18 months	16,000 mi (25,000 km) or 24 months	20,000 mi (31,000 km) or 30 months
1		**Engine oil**	• Replace	See page 6-9.	√	√	√	√	√	√
2	*	**Oil filter**	• Replace	-	√		√		√	
3	*	**Air filter (See NOTE on page 6-6.)**	• Clean with compressed air. • Replace if necessary.	-		√	√	√	√	√
4	*	**Front brake**	• Check operation and fluid leakage. (See NOTE page 6-6.) • Correct if necessary.	-	√	√	√	√	**Replace brake fluid**	√
5	*	**Rear brake**	• Check operation and fluid leakage. (See NOTE page 6-6.) • Correct if necessary.	-	√	√	√	√	**Replace brake fluid**	√
6	*	**Clutch**	• Check operation and free play. • Correct if necessary.	-	√	√	√	√	√	√
7	*	**Transfer case oil**	• Check vehicle for leakage. • Replace every 16,000 mi (25,000 km) or 24 months.	SAE 80 API "GL-4" hypoid gear oil	**Replace**		**Check**		**Replace**	
8	*	**Control cable**	• Apply chain lube thoroughly.	Yamaha chain and cable lube or SAE 10W30 motor oil	√	√	√	√	√	√
9	*	**Rear arm pivot bearing**	• Check bearing assembly for looseness. • Moderately repack every 16,000 mi (25,000 km) or 24 months.	Medium weight wheel bearing grease			√		**Repack**	

* Since these items require special tools, data and technical skills, they should be serviced by a Yamaha dealer.

No.		ITEM	ROUTINE	TYPE	INITIAL	ODOMETER READINGS				
					600 mi (1,000 km) or 1 month	4,000 mi (7,000 km) or 6 months	8,000 mi (13,000 km) or 12 months	12,000 mi (19,000 km) or 18 months	16,000 mi (25,000 km) or 24 months	20,000 mi (31,000 km) or 30 months
10		**Brake/ Clutch lever pivot shaft**	• Apply chain lube lightly.	Yamaha chain and cable lube or SAE 10W30 motor oil		√	√	√	√	√
11		**Brake pedal and shift pedal shaft**	• Lubricate • Apply chain lube lightly.	Yamaha chain and cable lube or SAE 10W30 motor oil		√	√	√	√	√
12	*	**Sidestand pivot**	• Check operation and lubricate. • Apply chain lube lightly.	Yamaha chain and cable lube or SAE 10W30 motor oil		√	√	√	√	√
13	*	**Sidestand switch**	• Check and clean or replace if necessary.	-	√	√	√	√	√	√
14	*	**Front fork**	• Check operation and for leakage.	-		√	√	√	√	√
15	*	**Steering bearings**	• Check bearing assembly for looseness. • Moderately repack every 16,000 mi (25,000 km) or 24 months.	Lithium soap base grease		√	√	√	**Repack**	√
16	*	**Wheel bearings**	• Check bearings for smooth rotation.	-		√	√	√	√	√
17	*	**Rear suspension link pivots**	• Apply grease lightly.	Molybdenum disulfide grease					√	
18	*	**Drive belt**	• Check for belt tension • Adjust if necessary	-	√	**Every 2,500 mi (4,000 km)**				

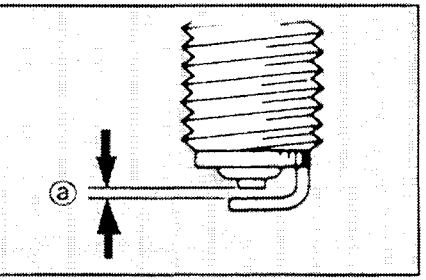
Since these items require special tools, data and technical skills, they should be serviced by a Yamaha dealer.

NOTE:

For odometer readings or time periods higher than 20,000 mi (31,000 km) or 30 months, repeat the same maintenance as listed in the chart from the 4,000 mi (7,000 km) or 6 month interval.

NOTE:

- The air filter needs more frequent service if you are riding in unusually wet or dusty areas.
- Hydraulic brake system
  - When disassembling the master cylinder or caliper, always replace the brake fluid. Check the brake fluid level regularly and fill as required.
  - Replace the oil seals on the inner parts of the master cylinder and caliper every two years.
  - Replace the brake hoses every four years or if cracked or damaged.



a. Spark plug gap

Spark plug inspection

The spark plug is an important engine component and should be inspected periodically, preferably by a Yamaha dealer. The condition of the spark plug can indicate the condition of the engine.

Normally, all spark plugs from the same engine should have the same color on the white insulator around the center electrode. The ideal color at this point is a medium-to-light tan color for a motorcycle that is being ridden normally. If one spark plug shows a distinctly different color, there could be something wrong with the engine.

Do not attempt to diagnose such problems yourself. Instead, take the motorcycle to a Yamaha dealer. The spark plugs should be periodically removed and inspected because heat and deposits will cause any spark plug to slowly break down and erode. If electrode erosion becomes excessive, or if carbon and other deposits are excessive, the spark plug should be replaced with the specified plug.

Specified spark plug:
DPR7EA-9/NGK or
X22EPR-U9/DENSO

Before installing any spark plug, measure the electrode gap with a wire thickness gauge and adjust it to specification.

Spark plug gap:
0.03 ~ 0.04 in (0.8 ~ 0.9 mm)

When installing a spark plug, the gasket surface should always be cleaned and a new gasket used. Any grime should be wiped off from the threads and the spark plug tightened to the specified torque.

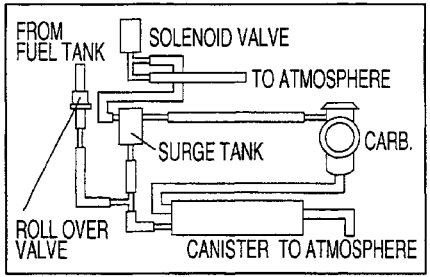
Tightening torque:
Spark plug:
12.5 ft·lb (1.75 m·kg, 17.5 Nm)

NOTE:

If a torque wrench is not available when installing a spark plug, a good estimate of the correct torque is 1/4 to 1/2 turn past finger tight. The spark plug should be tightened to the specified torque as soon as possible.

CAUTION:

Do not use any type of tools to remove or install the cap as the ignition coil coupler may get damaged. The spark plug cap may be difficult to remove because a rubber seal on the end of the cap is tightly fit into the cylinder bore. To remove the cap, simply twist it back and forth while pulling it upward; when installing the cap, twist it back and forth while pushing it downward.



Canister (for California only)

This model is equipped with a canister to prevent the discharging of fuel vapor into the atmosphere. Before using this motorcycle, be sure to check the following:

- Check each hose connection.
- Check each hose and canister for cracks or damage. Replace if damaged.
- Make sure the canister breather is not blocked. Clean it if necessary.

Engine oil

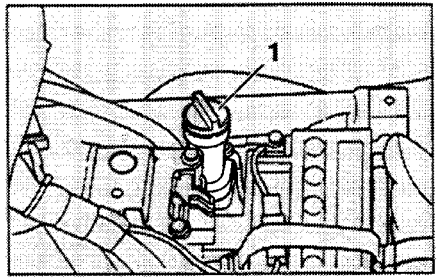
Oil level inspection

1. Place the motorcycle on a level surface.
2. Remove the rider seat. (See page 3-11 for rider seat removal and installation procedures.)
3. Start and run the engine for several minutes until the oil has reached a normal temperature of 140 °F (60 °C).

NOTE:

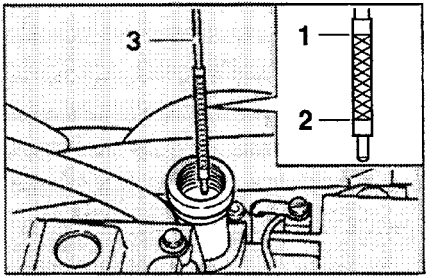
To achieve the proper engine oil temperature for an accurate oil level reading, the engine must have first completely cooled down and then warmed up again for several minutes to normal operating temperature.

4. Place the motorcycle in an upright position and continue idling for 10 seconds, then stop the engine.



1. Oil filler cap

5. Remove the engine oil filler cap and wipe the oil off the dipstick. Insert the dipstick back into the engine oil filler hole, but do not screw on the oil filler cap, and then pull the dipstick out again. The oil level should be between the maximum and minimum level marks. If the level is low, add sufficient oil through the filler hole to reach the specified level.



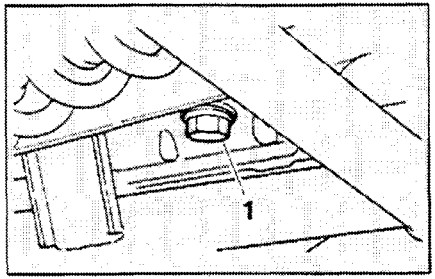
1. Maximum level
2. Minimum level
3. Dipstick

NOTE:

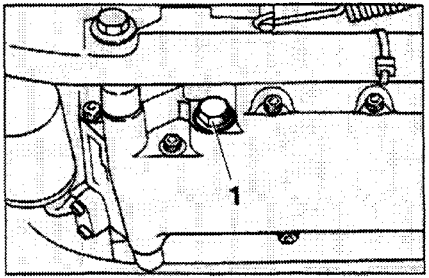
- Be sure the motorcycle is positioned straight up when checking the oil level. A slight tilt toward the side can result in false readings.
- When adding oil, be careful not to overfill the engine; the oil level rises faster starting from the half level portion on the dipstick.

6. Insert the dipstick into the oil filler hole and tighten the oil filler cap, then install the rider seat.

CAUTION:
Be sure the oil filler cap is securely tightened as the oil may seep out when the engine is running.



1. Engine oil drain bolt (oil tank)



1. Engine oil drain bolt (engine)

Engine oil and oil filter cartridge replacement

1. Warm up the engine for several minutes, and then stop the engine.
2. Place an oil pan under the engine oil drain bolts, and then remove the rider seat and oil filler cap.
3. Remove the engine oil drain bolts and drain the oil from the oil tank.
4. Remove the oil filter by using an oil filter wrench.

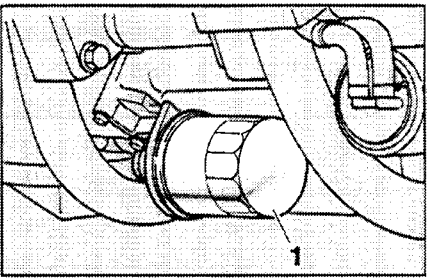
NOTE:
An oil filter wrench is available at a nearby Yamaha dealer.

5. Install the drain bolts and tighten them to the specified torque.

Tightening torque:
Drain bolt (oil tank):
31 ft·lb (4.3 m·kg, 43 Nm)
Drain bolt (engine):
31 ft·lb (4.3 m·kg, 43 Nm)

6. Apply a light coat of engine oil to the O-ring of the new oil filter.

NOTE:
Make sure the O-ring is seated properly.



1. Engine oil filter cartridge

7. Install the oil filter and tighten it to the specified torque with an oil filter wrench.

Tightening torque:
Oil filter:
12 ft·lb (1.7 m·kg, 17 Nm)

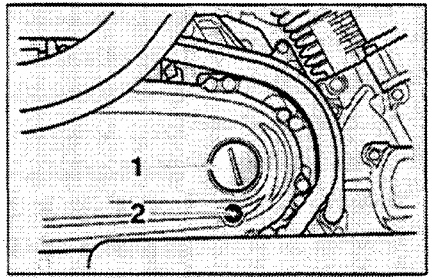
8. Pour only 2.6 US qt (2.2 Imp qt, 2.5 L) of oil into the oil filler hole, then install the oil filler cap and tighten it.
9. Start the engine and rev it several times.
10. Stop the engine and remove the oil filler cap.
11. Gradually fill the oil tank with the remainder of the recommended oil quantity while checking the level on the dipstick.

Recommended oil:
See page 8-1.
Oil quantity:
Total amount:
5.3 US qt (4.4 Imp qt, 5.0 L)
Periodic oil change:
3.9 US qt (3.3 Imp qt, 3.7 L)
With oil filter replacement:
4.3 US qt (3.6 Imp qt, 4.1 L)

CAUTION:

- **Do not put in any chemical additives. Engine oil also lubricates the clutch and additives could cause clutch slippage.**
- **Be sure no foreign material enters the crankcase.**

12. Install the oil filler cap.
13. Start the engine and warm it up for several minutes. While warming up, check for oil leakage. If oil leakage is found, stop the engine immediately and check for the cause.
14. Stop the engine and recheck the oil level.



1. Transfer oil filler cap
2. Transfer oil level check bolt

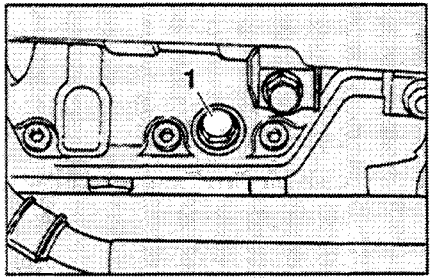
Transfer case oil

Oil level inspection

1. Position the motorcycle upright.
2. Remove the transfer case oil check bolt.
3. If the oil does not reach to the brim of the check hole, remove the oil filler cap and add sufficient oil through the oil filler hole.

NOTE:

- Install the oil level check bolt before adding oil.
- Install the oil filler cap after adding oil.

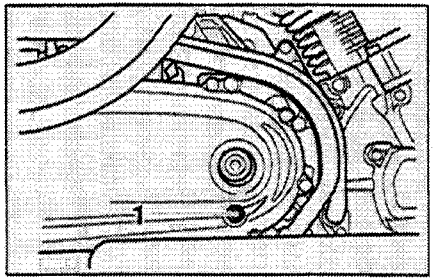


1. Transfer oil drain bolt

Oil replacement

1. Place the motorcycle on a level surface.
2. Place an oil pan under the transfer case.
3. Remove the transfer case oil drain and check bolts and drain the oil.
4. Install the drain bolt and the check bolt and tighten them to the specified torques.

Tightening torque:
Drain bolt:
13 ft·lb (1.75 m·kg, 17.5 Nm)
Check bolt:
5 ft·lb (0.75 m·kg, 7.5 Nm)



1. Transfer oil level check hole

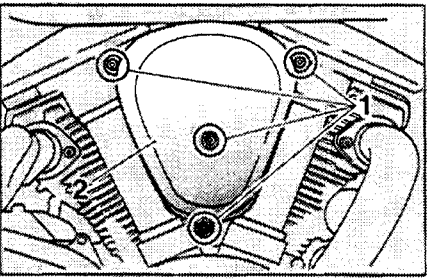
5. Remove the oil filler cap and fill the transfer case with sufficient oil.

Recommended oil:
See page 8-2.
Oil quantity:
0.42 US qt (0.35 Imp qt, 0.4 L)

CAUTION:

Be sure no foreign material enters the transfer case.

6. Check the oil level.
7. Install the oil filler cap and tighten it.
8. Check for oil leakage. If oil leakage is found, check for the cause.

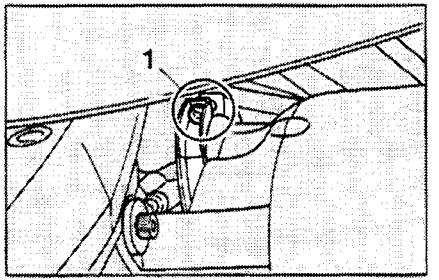


1. Bolt (× 4)
2. Air filter case cover

Air filter

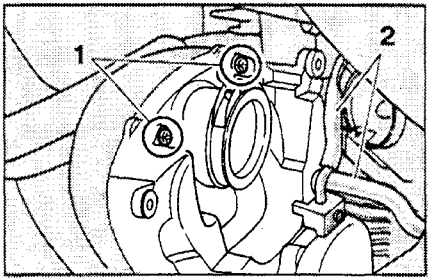
The air filter should be cleaned at the specified intervals.
The air filter should be cleaned more frequently if you are riding in unusually wet or dusty areas.

1. Remove the air filter case bolts.



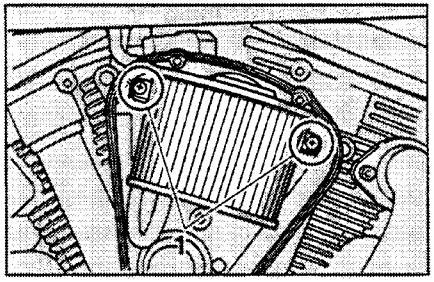
1. Carburetor joint screw

2. Loosen the carburetor joint screw and slightly pull the air filter case outward.



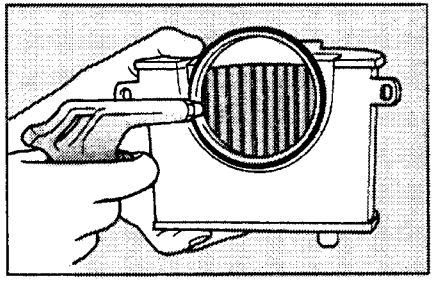
1. Screw (× 2)
2. Hose (× 2)

3. Remove the air filter case cover by removing the screws.
4. Disconnect the hoses.

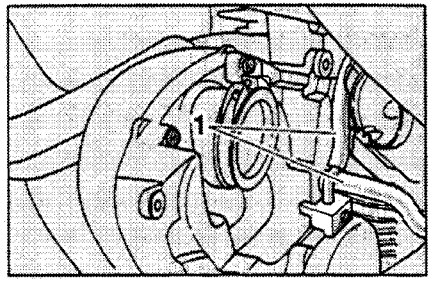


1. Screw (× 2)

5. Remove the air filter by removing the screws.



6. Tap the air filter lightly to remove most of the dust and dirt and blow out the remaining dirt with compressed air as shown. If the air filter is damaged, replace it.
7. Reassemble by reversing the removal procedure.



1. Hose (× 2)

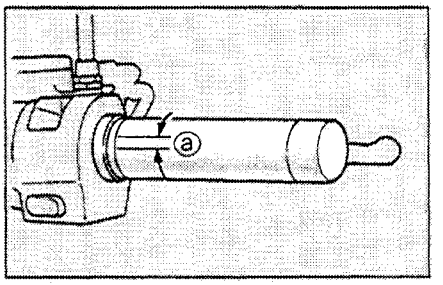
NOTE:
Be sure to connect the hoses.

CAUTION:

- **Make sure the air filter is properly seated in the air filter case.**
- **The engine should never be run without the air filter installed. Excessive piston and/or cylinder wear may result.**

Carburetor adjustment

The carburetor is an important part of the engine and its emission control system. Adjusting should be left to a Yamaha dealer with the professional knowledge, specialized data and equipment to do so properly.



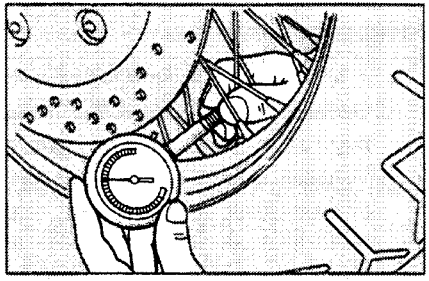
a. Free play

Throttle cable free play inspection

There should be a free play of 0.16 ~ 0.24 in (4 ~ 6 mm) at the throttle grip. If the free play is incorrect, ask a Yamaha dealer to make this adjustment.

Valve clearance adjustment

The correct valve clearance changes with use, resulting in improper fuel/air supply or engine noise. To prevent this, the valve clearance must be adjusted regularly. This adjustment however, should be left to a professional Yamaha service technician.



Tires

To ensure maximum performance, long service, and safe operation, note the following:

Tire air pressure

Always check and adjust the tire pressure before operating the motorcycle.

⚠ WARNING

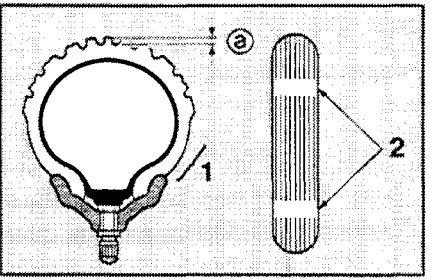
Tire inflation pressure should be checked and adjusted when the temperature of the tire equals the ambient air temperature. Tire inflation pressure must be adjusted according to total weight of cargo, rider, passenger, and accessories (windshield, saddlebags, etc. if approved for this model).

Maximum load*	XV16A 432 lb (196 kg) XV16AT 399 lb (181 kg)	
Cold tire pressure	Front	Rear
Up to 198 lb (90 kg) load*	36 psi (2.50 kgf/cm^2, 250 kPa)	36 psi (2.50 kgf/cm^2, 250 kPa)
198 lb (90 kg) load ~ Maximum load*	36 psi (2.50 kgf/cm^2, 250 kPa)	41 psi (2.80 kgf/cm^2, 280 kPa)

* Load is the total weight of cargo, rider, passenger, and accessories.

⚠ WARNING

Proper loading of your motorcycle is important for several characteristics of your motorcycle, such as handling, braking, performance and safety. Do not carry loosely packed items that can shift. Securely pack your heaviest items close to the center of the motorcycle, and distribute the weight evenly from side to side. Properly adjust the suspension for your load, and check the condition and pressure of your tires. NEVER OVERLOAD YOUR MOTORCYCLE. Make sure the total weight of the cargo, rider, passenger, and accessories (windshield, saddlebags, etc. if approved for this model) does not exceed the maximum load of the motorcycle. Operation of an overloaded motorcycle could cause tire damage, an accident, or even injury.



1. Sidewall
2. Wear indicator
a. Tread depth

Tire inspection

Always check the tires before operating the motorcycle. If center tread depth reaches the limit as shown, if the tire has a nail or glass fragments in it, or if the side wall is cracked, contact a Yamaha dealer immediately and have the tire replaced.

FRONT

Manufacturer	Size	Type
Dunlop	130/90-16 67H	D404FL
Bridgestone	130/90-16 67H	G703F

REAR

Manufacturer	Size	Type
Dunlop	150/80B-16 71H	D404
Bridgestone	150/80B-16 71H	G702

Minimum tire tread depth (front and rear)	0.04 in (1.0 mm)

⚠ WARNING

- **It is dangerous to ride with a worn-out tire. When a tire tread begins to show lines, have a Yamaha dealer replace the tire immediately. Brakes, tires, and related wheel parts replacement should also be left to a Yamaha dealer.**
- **Patching a punctured tube is not recommended. If it is absolutely necessary to do so, use great care and replace the tube as soon as possible with a good quality replacement.**

Wheels

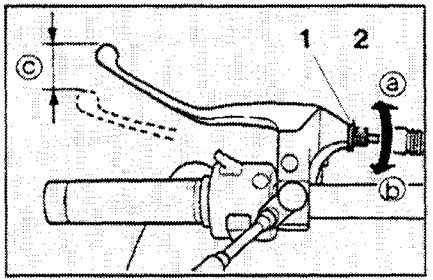
To ensure maximum performance, long service, and safe operation, note the following:

- Always inspect the wheels before a ride. Check for cracks, bends or warpage of the wheel. Be sure the spokes are tight and undamaged. If any abnormal condition exists in a wheel, consult a Yamaha dealer. Do not attempt even small repairs to the wheel. If a wheel is deformed or cracked, it must be replaced.
- Tires and wheels should be balanced whenever either one is changed or replaced. Failure to have a wheel balanced can result in poor performance, adverse handling characteristics, and shortened tire life.
- Ride at moderate speeds after changing a tire since the tire surface must first be broken in for it to develop its optimal characteristics.

Accessories or replacement parts

⚠ WARNING

This motorcycle is not designed to pull a trailer or to be attached to a sidecar. The accessories or replacement parts you choose for your motorcycle should be designed specifically for it, and they must be securely mounted to maintain the inherent stability of the original design. Genuine Yamaha Parts and Accessories are designed and tested to be compatible with your motorcycle. Please consider Genuine Yamaha Parts and Accessories before making an accessory purchase. Use of non-Yamaha-approved parts or accessories may cause loss of handling stability and riding safety. Since Yamaha cannot control the quality of parts or accessories manufactured by other companies, Yamaha cannot be held liable for any consequences caused by the use of items which have not been approved by Yamaha.

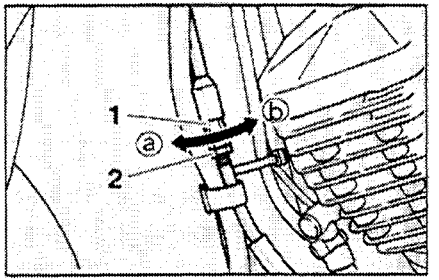


1. Locknut
2. Adjusting bolt
c. Free play

Clutch lever free play adjustment

The clutch lever free play should be adjusted to 0.4 ~ 0.6 in (10 ~ 15 mm).

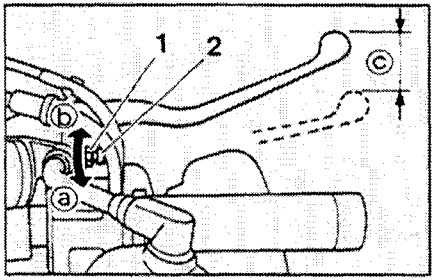
1. Loosen the locknut at the clutch lever.
2. Turn the adjusting bolt at the clutch lever in direction ⓐ to increase free play or in direction ⓑ to decrease free play.
3. Tighten the locknut at the clutch lever.



1. Adjusting nut
2. Locknut

If the specified free play cannot be obtained, proceed with the following steps.

4. Loosen the locknut at the clutch lever.
5. Turn the adjusting bolt at the clutch lever in direction ⓐ to loosen the cable.
6. Loosen the locknut at the crankcase side.
7. Turn the adjusting nut at the crankcase in direction ⓐ to increase free play or in direction ⓑ to decrease free play.
8. Tighten the locknut at the crankcase and the clutch lever.



1. Locknut
2. Adjusting bolt
c. Free play

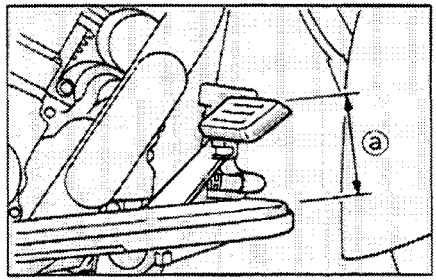
Front brake lever free play adjustment

The free play at the front brake lever should be 0.08 ~ 0.2 in (2 ~ 5 mm).

1. Loosen the locknut.
2. Turn the adjusting bolt in direction ⓐ to increase free play or in direction ⓑ to decrease free play.
3. After adjusting, tighten the locknut.

⚠ WARNING

- **Check the brake lever free play. Be sure the brake is working properly.**
- **A soft or spongy feeling in the brake lever can indicate the presence of air in the brake system. This air must be removed by bleeding the brake system before the motorcycle is operated. Air in the system will cause greatly diminished braking capability and can result in loss of control and an accident. Have a Yamaha dealer inspect and bleed the system if necessary.**



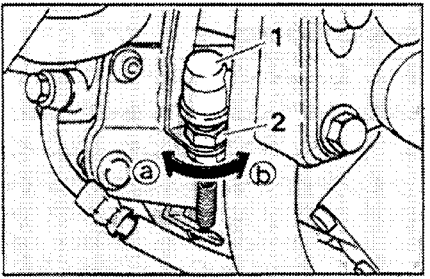
a. Brake pedal height

Rear brake pedal height adjustment

The top of the brake pedal should be positioned 3.9 in (100 mm) above the top of the footrest. If not, ask a Yamaha dealer to adjust it.

⚠ WARNING

A soft or spongy feeling in the brake pedal can indicate the presence of air in the brake system. This air must be removed by bleeding the brake system before the motorcycle is operated. Air in the system will cause greatly diminished braking capability and can result in loss of control and an accident. Have a Yamaha dealer inspect and bleed the system if necessary.



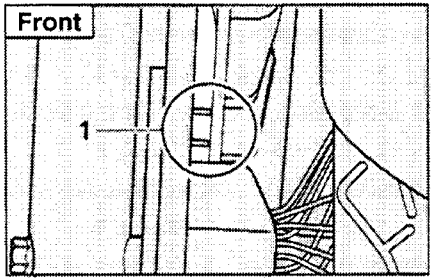
1. Brake light switch
2. Adjusting nut

Brake light switch adjustment

The rear brake light switch is activated by the brake pedal and is properly adjusted when the brake light comes on just before braking takes effect. To adjust the rear brake light switch, hold the switch body so it does not rotate while turning the adjusting nut.

Turn the adjusting nut in direction ⓐ to make the brake light come on earlier.

Turn the adjusting nut in direction ⓑ to make the brake light come on later.

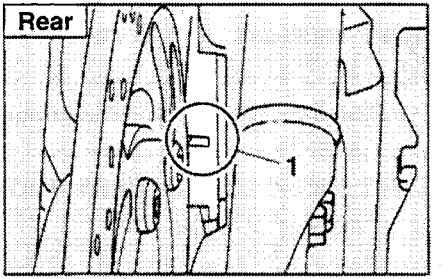


1. Wear indicator groove (× 2)

Checking the front and rear brake pads

Front brake

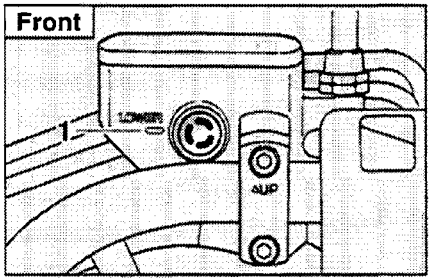
Wear indicator grooves are provided on each brake pad. These indicators allow checking of brake pad wear without disassembling the brake. Inspect the grooves. If they have almost disappeared, ask a Yamaha dealer to replace the pads.



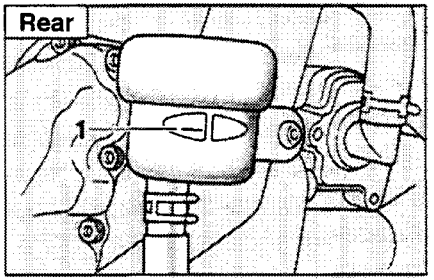
1. Wear indicator groove

Rear brake

A wear indicator groove is provided on each brake pad. This indicator allows checking of brake pad wear without disassembling the brake. Inspect the groove. If the groove has almost disappeared, ask a Yamaha dealer to replace the pads.



1. Minimum level mark



1. Minimum level mark

Inspecting the brake fluid level

Insufficient brake fluid may let air enter the brake system, possibly causing the brakes to become ineffective.

Before riding, check that the brake fluid is above the minimum level and replenish when necessary.

Observe these precautions:

- When checking the fluid level, make sure the top of the master cylinder is level by turning the handlebars.
- Use only the designated quality brake fluid. Otherwise, the rubber seals may deteriorate, causing leakage and poor brake performance.

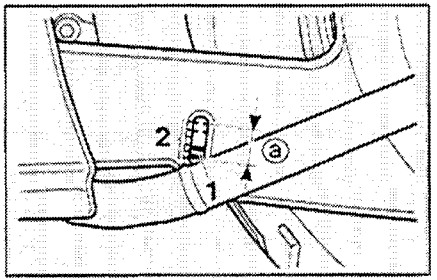
Recommended brake fluid: DOT 4

- Refill with the same type of brake fluid. Mixing fluids may result in a harmful chemical reaction and lead to poor brake performance.
- Be careful that water does not enter the master cylinder when refilling. Water will significantly lower the boiling point of the fluid and may result in vapor lock.
- Brake fluid may deteriorate painted surfaces or plastic parts. Always clean up spilled fluid immediately.
- Have a Yamaha dealer check the cause if the brake fluid level goes down.

Brake fluid replacement

The brake fluid should be replaced only by trained Yamaha service personnel. Have the Yamaha dealer replace the following components during periodic maintenance or when they are damaged or leaking:

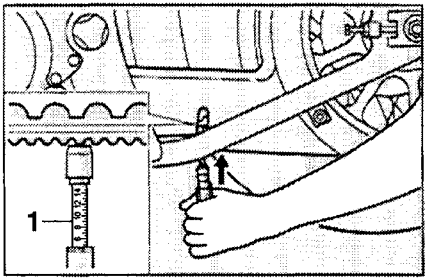
- oil seals (every two years)
- brake hoses (every four years)



1. Drive belt
2. Marks
a. Slack

Drive belt slack check

1. Put the motorcycle on the sidestand and make sure that both wheels are on the ground.
2. Using the reference marks at the side of the check window, which is located at the rear left side of the motorcycle, note the current position of the drive belt.

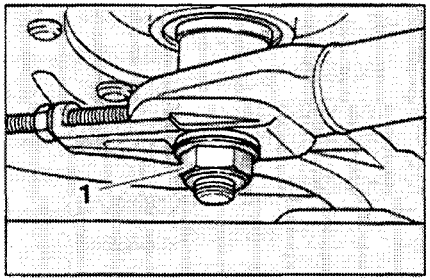


1. Belt tension gauge

3. Apply a force of 10 lb (4.5 kg, 45 N) with the belt tension gauge to the lower drive belt run as shown and recheck the drive belt position in the check window. The normal drive belt slack (i.e., the distance between the original belt position and its position with the force applied) is approximately 0.3 ~0.5 in (7.5 ~ 13 mm).
4. If the measured slack exceeds 0.5 in (13 mm), adjust the drive belt.

NOTE:

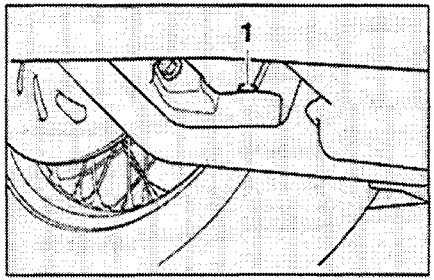
The reference marks at the side of the drive belt check window are 0.2 in (5 mm) apart.



1. Wheel axle nut

Drive belt slack adjustment

1. Loosen the axle nut and caliper bracket bolt.

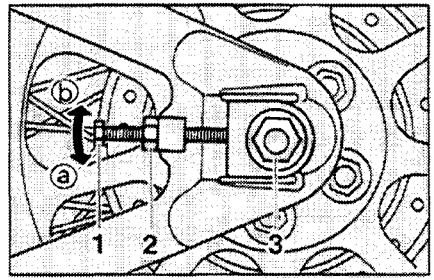


1. Caliper bracket bolt

2. Loosen the locknuts on each side of the swingarm.
3. To tighten the drive belt, turn the adjusting bolts in direction ⓐ.
   To loosen the drive belt, turn the adjusting bolts in direction ⓑ and push the wheel forward. Turn each adjusting bolt exactly the same amount to maintain correct axle alignment.
4. Tighten the locknuts.

CAUTION:

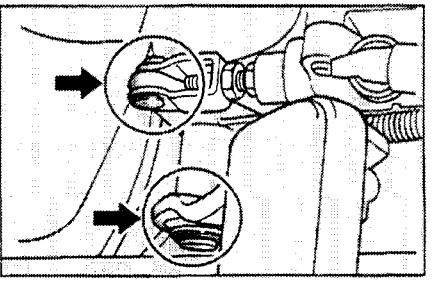
Too little drive belt slack will overload the engine. Keep the drive belt slack within the specified range.

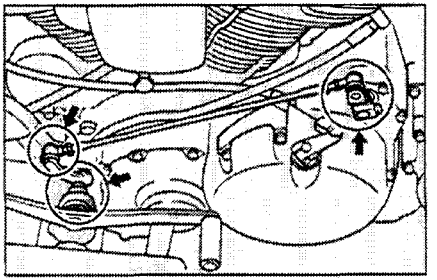


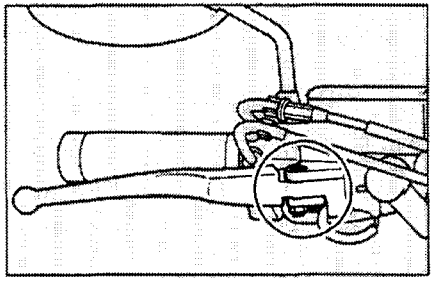
1. Adjusting bolt (× 2)
2. Locknut (× 2)
3. Wheel axle

5. Tighten the axle nut and caliper bracket bolt to the specified torque.

Tightening torque:
Axle nut:
108.5 ft·lb (15 m·kg, 150 Nm)
Caliper bracket bolt:
34.7 ft·lb (4.8 m·kg, 48 Nm)







Brake and shift pedal lubrication

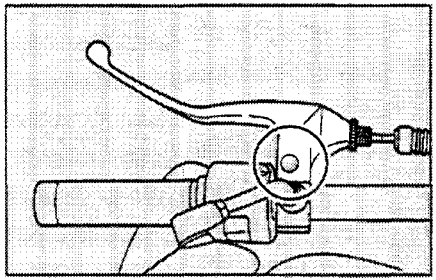
Lubricate the pivoting parts.

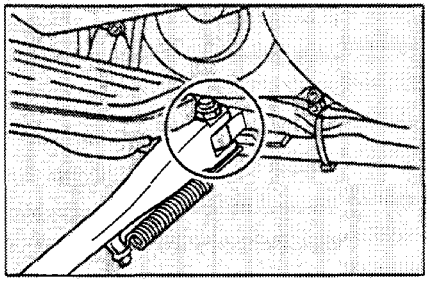
Recommended lubricant:
Yamaha Chain and Cable Lube or SAE 10W30 motor oil

Brake and clutch lever lubrication

Lubricate the pivoting parts.

Recommended lubricant:
Yamaha Chain and Cable Lube or SAE 10W30 motor oil





Sidestand lubrication

Lubricate the sidestand pivoting point and metal-to-metal contact surfaces. Check that the sidestand moves up and down smoothly.

Recommended lubricant:
Yamaha Chain and Cable Lube
or SAE 10W30 motor oil

⚠ WARNING

If the sidestand does not move smoothly, consult a Yamaha dealer.

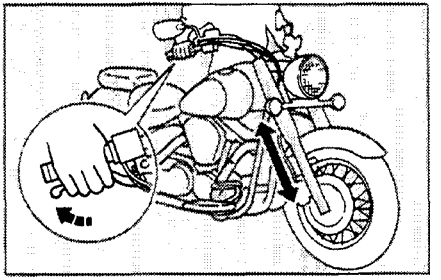
Front fork inspection

Visual check

⚠ WARNING

Securely support the motorcycle so there is no danger of it falling over.

Check for scratches or damage on the inner tube and excessive oil leakage from the front fork.

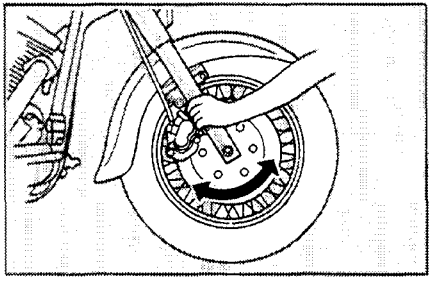


Operation check

1. Place the motorcycle on a level place.
2. Hold the motorcycle in an upright position and apply the front brake.
3. Push down hard on the handlebars several times and check if the fork rebounds smoothly.

CAUTION:

If any damage or unsmooth movement is found with the front fork, consult a Yamaha dealer.



Steering inspection

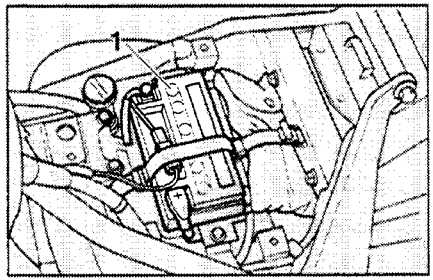
Periodically inspect the condition of the steering. Worn out or loose steering bearings may be dangerous. Place a stand under the engine to raise the front wheel off the ground. Hold the lower end of the front forks and try to move them forward and backward. If any free play can be felt, ask a Yamaha dealer to inspect and adjust the steering. Inspection is easier if the front wheel is removed.

⚠ WARNING

Securely support the motorcycle so there is no danger of it falling over.

Wheel bearings

If there is play in the front or rear wheel hub or if the wheel does not turn smoothly, have a Yamaha dealer inspect the wheel bearings.



1. Battery

Battery

This motorcycle is equipped with a sealed-type battery. Therefore it is not necessary to check the electrolyte or fill the battery with distilled water.

- If the battery seems to have discharged, consult a Yamaha dealer.
- If the motorcycle is equipped with optional electrical accessories, the battery tends to discharge more quickly, so be sure to recharge it periodically.

CAUTION:

Never try to remove the sealing caps of the battery cells. The battery will be damaged.

⚠ WARNING

Battery electrolyte is poisonous and dangerous, causing severe burns, etc. It contains sulfuric acid. Avoid contact with skin, eyes or clothing.
ANTIDOTE:

- **EXTERNAL: Flush with water.**
- **INTERNAL: Drink large quantities of water or milk. Follow with milk of magnesia, beaten egg, or vegetable oil. Call a physician immediately.**
- **EYES: Flush with water for 15 minutes and get prompt medical attention.**

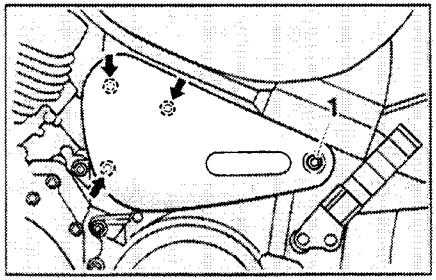
Batteries produce explosive gases. Keep sparks, flame, cigarettes etc., away. Ventilate when charging or using in an enclosed space. Always shield your eyes when working near batteries.
KEEP OUT OF REACH OF CHILDREN.

Battery storage

When the motorcycle is not used for a month or longer, remove the battery, fully charge it and store it in a cool, dry place.

CAUTION:

- **Completely recharge the battery before storing. Storing a discharged battery can cause permanent battery damage.**
- **Use a battery charger designed for a sealed-type (MF) battery. Using a conventional battery charger will cause battery damage. If you do not have a sealed-type battery charger, contact your Yamaha dealer.**
- **Always make sure the connections are correct when reinstalling the battery.**

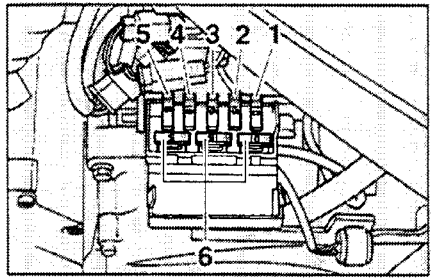


1. Bolt

Fuse replacement

The fuse boxes are located behind the left side cover. Remove the bolt and pull outward to remove the cover.

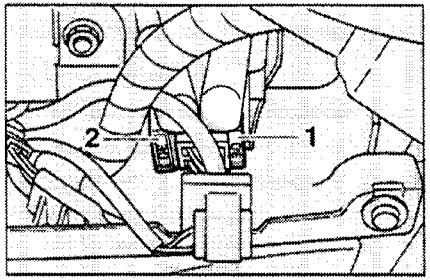
If a fuse is blown, turn off the main switch and the switch of the circuit in question. Install a new fuse of proper amperage. Turn on the switches and see if the electrical device operates. If the fuse immediately blows again, consult a Yamaha dealer.



1. Signaling system fuse
2. Ignition fuse
3. Headlight fuse
4. Carburetor heater fuse
5. Odometer fuse
6. Spare fuse (× 3)

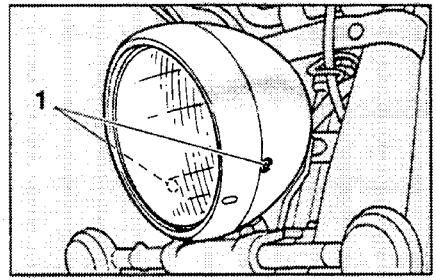
CAUTION:

Do not use fuses of higher amperage rating than those recommended. Substitution of a fuse of improper rating can cause extensive electrical system damage and possibly a fire.



1. Main fuse
2. Spare fuse

Specified fuses:	
Main fuse:	30 A
Ignition fuse:	15 A
Signaling system fuse:	10 A
Headlight fuse:	15 A
Carburetor heater fuse:	10 A
Odometer fuse:	5 A

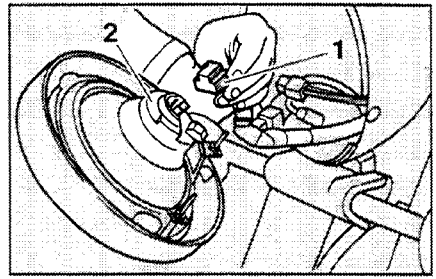


1. Screw (×2)

Headlight bulb replacement

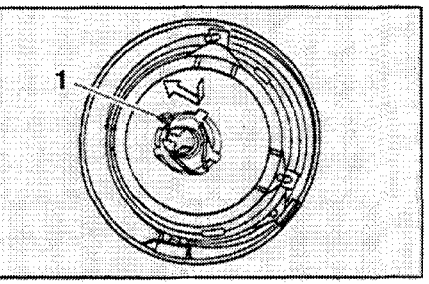
This motorcycle is equipped with a quartz bulb headlight. If the headlight bulb burns out, replace the bulb as follows:

1. Remove the screws holding the headlight assembly.



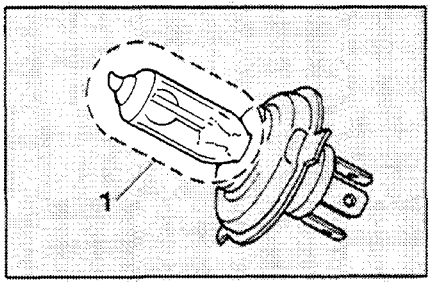
1. Connector
2. Bulb holder cover

2. Remove the headlight connector and the bulb cover.



1. Bulb holder

3. Unhook the bulb holder and remove the defective bulb.



1. Don't touch

⚠ WARNING

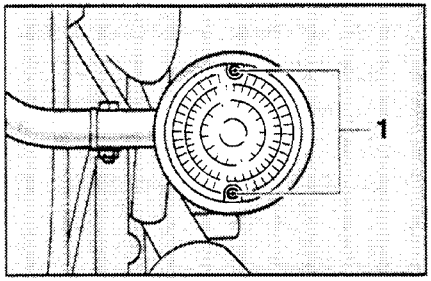
Keep flammable products and your hands away from a bulb while it is on, as it is hot. Do not touch a bulb until it cools down.

4. Put a new bulb into position and secure it in place with the bulb holder.

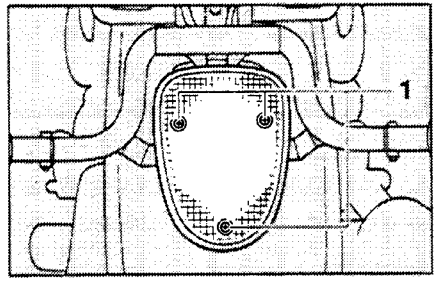
CAUTION:

Avoid touching the glass part of a bulb. Keep it free from oil; otherwise, the transparency of the glass, life of the bulb, and luminous flux will be adversely affected. If oil gets on a bulb, thoroughly clean it with a cloth moistened with alcohol or lacquer thinner.

5. Install the bulb cover and the headlight connector. If the headlight beam adjustment is necessary, ask a Yamaha dealer to make that adjustment.



1. Screw (× 2)



1. Screw (× 3)

Turn signal and tail/brake light bulb replacement

1. Remove the screws and the lens.
2. Push the bulb inward and turn it counterclockwise.
3. Place a new bulb in the socket. Push the bulb inward and turn it clockwise until it engages into the socket.
4. Install the lens and the screws.

CAUTION:

Do not over-tighten the screws as the lens may break.

Troubleshooting

Although Yamaha motorcycles receive a rigid inspection before shipment from the factory, trouble may occur during operation.

Any problem in the fuel, compression, or ignition systems can cause poor starting and loss of power. The troubleshooting chart describes a quick, easy procedure for making checks.

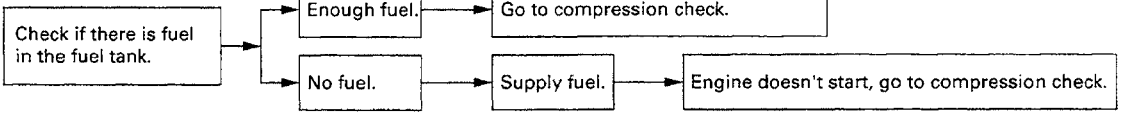
If your motorcycle requires any repair, bring it to a Yamaha dealer. The skilled technicians at a Yamaha dealership have the tools, experience, and know-how to properly service your motorcycle. Use only genuine Yamaha parts on your motorcycle. Imitation parts may look like Yamaha parts, but they are often inferior. Consequently, they have a shorter service life and can lead to expensive repair bills.

Troubleshooting chart

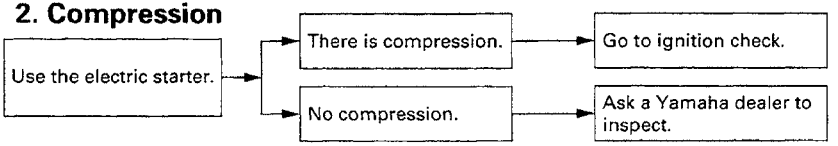
⚠ WARNING

Never check the fuel system while smoking or in the vicinity of an open flame.

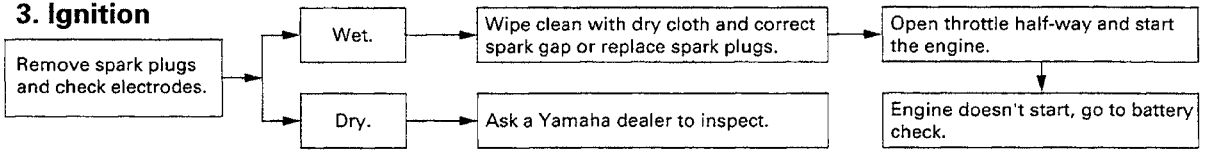
1. Fuel


Check if there is fuel in the fuel tank.
Enough fuel.
Go to compression check.
No fuel.
Supply fuel.
Engine doesn't start, go to compression check.

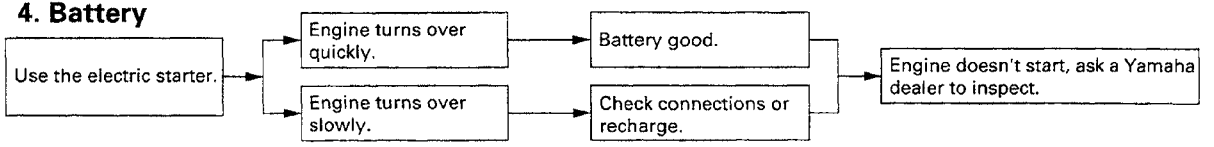
2. Compression



3. Ignition

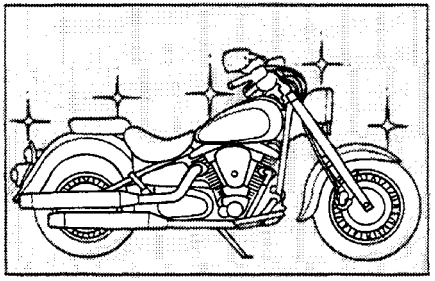

Remove spark plugs and check electrodes.
Wet.
Wipe clean with dry cloth and correct spark gap or replace spark plugs.
Open throttle half-way and start the engine.
Dry.
Ask a Yamaha dealer to inspect.
Engine doesn't start, go to battery check.

4. Battery


Use the electric starter.
Engine turns over quickly.
Battery good.
Engine doesn't start, ask a Yamaha dealer to inspect.
Engine turns over slowly.
Check connections or recharge.

Cleaning 7-1
Saddlebag cleaning and care 7-3
Storage 7-3

CLEANING AND STORAGE



Cleaning

Frequent, thorough cleaning of your motorcycle will not only enhance its appearance but will improve its general performance and extend the useful life of many components.

CAUTION:

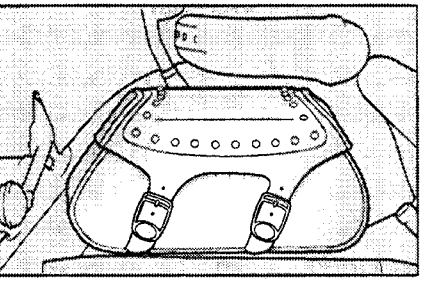
- **Improper cleaning can damage the windshield, cowlings, panels and other plastic parts. Use only a soft, clean cloth or sponge with mild detergent and water to clean plastic. If the windshield is scratched, use a quality plastic polishing compound after washing.**
- **Do not use any harsh chemical products on plastic parts. Be sure to avoid using cloths or sponges which have been in contact with strong or abrasive cleaning products, solvent or thinner, fuel (gasoline), rust removers or inhibitors, brake fluid, antifreeze or electrolyte.**

1. Before cleaning the motorcycle:
   a. Block off the end of the exhaust pipes to prevent water entry; a plastic bag and strong rubber band may be used.
   b. Make sure the spark plugs and all filler caps are properly installed.
2. If the engine case is excessively greasy, apply Yamaha Mud and Grease Release or other quality degreaser with a paint brush. Do not apply degreaser to wheel axles.
3. Rinse the dirt and degreaser off with a garden hose. Use only enough pressure to do the job.

CAUTION:

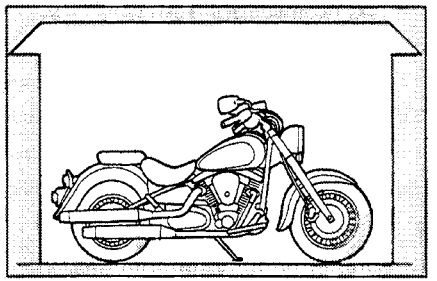
Excessive hose pressure may cause water seepage and deterioration of wheel bearings, front fork, brakes, transmission seals and electrical parts.
Many expensive repair bills have resulted from improper high pressure detergent applications such as those available in coin-operated car washers.

4. Once the majority of the dirt has been hosed off, wash all surfaces (except leather saddlebags) with warm water and mild, detergent-type soap. An old toothbrush or bottle brush is handy for hard-to-get-at places.
5. Rinse the motorcycle off immediately with clean water and dry all surfaces with a chamois, clean towel, or soft absorbent cloth.
6. Clean the seat with Yamaha Protectant or an equivalent vinyl upholstery cleaner to keep the cover pliable and glossy.
7. Windshield cleaning [XV16AT(C)]
   Avoid using any alkaline or strong acid cleaner, gasoline, brake fluid, or any other solvent. Clean the windshield with a cloth or sponge dampened with a neutral detergent, and after cleaning, thoroughly wash it off with water. For additional cleaning, use Yamaha Windshield Cleaner or other quality cleaner. Some cleaning compounds for plastics may leave scratches on surfaces of the windshield. Before using them, make a test by polishing an area which does not affect your visibility.
8. Apply Yamaha Silicone Wax or other automotive-type wax on all painted and chrome-plated surfaces. Avoid combination cleaner-waxes. Many contain abrasives which may mar the paint or protective finish. When finished, start the engine and let it idle for several minutes.



Saddlebag cleaning and care [XV16AT(C)]

Use a good grade of saddle soap. Rub lightly over the surface of the soap with a damp cloth or sponge to produce a lather. Apply the lather to the surface of the saddlebag. Allow to dry. When dry, polish with a soft cloth to remove all traces of the dry lather. If the saddlebag has been exposed to severe weather conditions over a long period of time and has become faded, or if it has been scuffed by rough use, you can use a fine boot creme to return the leather to its original rich, even color. Exposure to the elements can result in the drying out of the leather saddlebag. To replenish the oils necessary to beautiful leather, an occasional application of mink oil is recommended. Make sure the saddlebag is clean and dry before applying the mink oil. Using a soft cloth or a dauber, work a thin coat of mink oil into the leather surface of the saddlebag. Wipe off excess immediately and allow to dry for several hours. This application will also enhance the water resistance of the saddlebag.



Storage

Long term storage (60 days or more) of your motorcycle will require some preventive procedures to guard against deterioration. After thoroughly cleaning the motorcycle, prepare for storage as follows:

1. Top off the fuel tank with fresh fuel and add one ounce of Yamaha Fuel Conditioner and Stabilizer or an equivalent stabilizer to each gallon of fuel. Run the engine for several minutes to insure the newly conditioned fuel enters the entire fuel system and carburetors.

NOTE:
Use of Yamaha Fuel Conditioner and Stabilizer eliminates the need to drain the fuel system. Consult your Yamaha dealer if the fuel system is to be drained instead.

2. Remove the spark plugs, pour about one tablespoon of SAE 10W30 or 20W40 motor oil in each spark plug hole and reinstall the spark plugs. Turn the engine over several times (ground the spark plug leads) to coat the cylinder walls with oil.

⚠ WARNING
When using the starter motor to crank the engine, remove the spark plug wires, and ground them to prevent sparking.

3. Lubricate all control cables.

NOTE:
Use a Yamaha Power Cable Luber and Yamaha Lube Zall or equivalent to pressure lubricate the cables and purge out any moisture between the inner and outer cables.

4. Block up the frame to raise both wheels off the ground.
5. Tie a plastic bag over the exhaust pipe outlets to prevent moisture from entering.
6. If storing in a humid or salt-air atmosphere, coat all exposed metal surfaces with a light film of oil. Do not apply oil to any rubber parts or the seat cover.
7. Remove the battery and fully charge it. Store it in a cool, dry place and recharge it once a month. Do not store the battery in an excessively warm or cold place [less than 30 °F (0 °C) or more than 90 °F (30 °C)]. See page 6-29 for battery storage precautions.

NOTE:
Make any necessary repairs before storing the motorcycle.

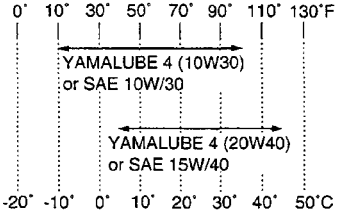
Specifications 8-1

Specifications

Model	XV16A/AT
Dimensions	
Overall length	98.4 in (2,500 mm)
Overall width	38.6 in (980 mm)
Overall height	
XV16A	44.9 in (1,140 mm)
XV16AT	59.1 in (1,500 mm)
Seat height	28.0 in (710 mm)
Wheelbase	66.3 in (1,685 mm)
Ground clearance	5.7 in (145 mm)
Minimum turning radius	126.0 in (3,200 mm)
Basic weight (with oil and full fuel tank)	
XV16A	732 lb (332 kg)
XV16AT	765 lb (347 kg)
Engine	
Engine type	Air-cooled 4-stroke, OHV
Cylinder arrangement	V-type 2-cylinder
Displacement	1,602 cm^3
Bore × Stroke	3.74 × 4.45 in (95 × 113 mm)
Compression ratio	8.3:1
Starting system	Electric starter
Lubrication system	Dry sump

Engine oil

Type



Recommended engine oil classification	API Service SE, SF, SG type or higher

CAUTION:

Be sure to use motor oils that do not contain anti-friction modifiers. Passenger car motor oils (often labeled "Energy Conserving") contain anti-friction additives which will cause clutch and/or starter clutch slippage, resulting in reduced component life and poor engine performance.

Quantity

Periodic oil change	3.9 US qt (3.3 Imp qt, 3.7 L)
With oil filter replacement	4.3 US qt (3.6 Imp qt, 4.1 L)
Total amount	5.3 US qt (4.4 Imp qt, 5.0 L)

Transfer case oil	
Type	SAE80API "GL-4" Hypoid Gear Oil
Quantity	0.42 US qt (0.35 Imp qt, 0.4 L)
Air filter	Dry type element
Fuel	
Type	Unleaded fuel
Fuel tank capacity	5.3 US gal (4.4 Imp gal, 20 L)
Reserve amount	0.9 US gal (0.8 Imp gal, 3.5 L)
Carburetor	
Type × quantity	BSR40 × 1
Manufacturer	MIKUNI
Spark plug	
Manufacturer/type	NGK/DPR7EA-9 or DENSO/X22EPR-U9
Gap	0.03 ~0.04 in (0.8 ~ 0.9 mm)
Clutch type	Wet, multiple-disc
Transmission	
Primary reduction system	Spur gear
Primary reduction ratio	1.532
Secondary reduction system	Belt
Secondary reduction ratio	2.320
Transmission type	Constant mesh 5-speed
Operation	Left foot operation
Gear ratio	
1st	2.438
2nd	1.579
3rd	1.160
4th	0.906
5th	0.750
Chassis	
Frame type	Double cradle
Caster angle	32°
Trail	5.6 in (142 mm)
Tire	
Front	
Type	With tube
Size	130/90-16 67H
Manufacturer/ model	Dunlop / D404FL
	Bridgestone / G703F
Rear	
Type	With tube
Size	150/80B-16 71H
Manufacturer/ model	Dunlop / D404
	Bridgestone / G702

Maximum load*	
XV16A	432 lb (196 kg)
XV16AT	399 lb (181 kg)
Air pressure (cold tire)	
Up to 198 lb (90 kg) load*	
Front	36 psi (2.50 kgf/cm^2, 250 kPa)
Rear	36 psi (2.50 kgf/cm^2, 250 kPa)
198 lb (90 kg) load ~ maximum load*	
Front	36 psi (2.50 kgf/cm^2, 250 kPa)
Rear	41 psi (2.80 kgf/cm^2, 280 kPa)

* Load is total weight of cargo, rider, passenger and accessories.

Wheels

Front	
Type	Spoke
Size	16 × MT 3.00
Rear	
Type	Spoke
Size	16 × MT 3.50

Brakes

Front	
Type	Dual disc brake
Operation	Right hand operation
Fluid	DOT 4
Rear	
Type	Single disc brake
Operation	Right foot operation
Fluid	DOT 4

Suspension

Front	
Type	Telescopic fork
Rear	
Type	Swingarm (link suspension)

Shock absorber

Front	Coil spring/oil damper
Rear	Coil spring/gas-oil damper

Wheel travel

Front	5.5 in (140 mm)
Rear	4.3 in (110 mm)

Electrical

Ignition system	T.C.I. (digital)
Charging system	
Type	A.C. magneto
Standard output	14 V, 21 A @ 5,000 r/min
Battery	
Type	YTX20L-BS
Voltage, capacity	12 V, 18 AH
Headlight type	Quartz bulb (halogen)

Bulb voltage, wattage × quantity

Headlight	12 V, 60/55 W × 1
Tail/brake light	12 V, 8/27 W × 1
Front turn signal / Front position light	12 V, 27/8 W × 2
Rear turn signal light	12 V, 27 W × 2
Meter light	14 V, 0.6 W × 4
Neutral indicator light	12 V, 1 W × 1
High beam indicator light	12 V, 1 W × 1
Turn indicator light	12 V, 1 W × 1
Fuel level indicator light	LED × 1
Engine trouble indicator light	LED × 1

Fuses

Main fuse	30 A
Ignition fuse	15 A
Signaling system fuse	10 A
Headlight fuse	15 A
Carburetor heater fuse	10 A
Odometer fuse	5 A

Identification number records 9-1
Key identification number 9-1
Vehicle identification number 9-1
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Reporting safety defects 9-3
Motorcycle noise regulation 9-4
Maintenance record 9-5
YAMAHA MOTOR CORPORATION, U.S.A. STREET AND ENDURO MOTORCYCLE LIMITED WARRANTY 9-7
YAMAHA EXTENDED SERVICE (Y.E.S.) 9-9

CONSUMER INFORMATION

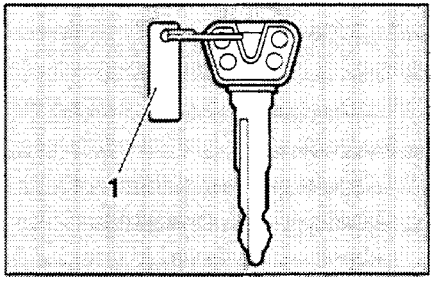
Identification number records

Record the key identification number, vehicle identification number and model label information in the spaces provided for assistance when ordering spare parts from a Yamaha dealer or for reference in case the vehicle is stolen.

1. KEY IDENTIFICATION NUMBER:

2. VEHICLE IDENTIFICATION NUMBER:

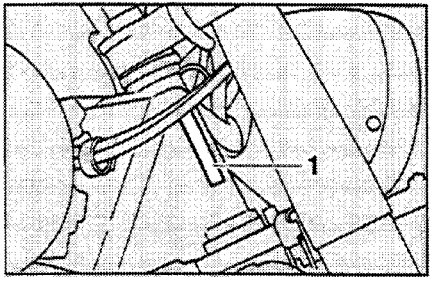
3. MODEL LABEL INFORMATION:



1. Key identification number

Key identification number

The key identification number is stamped on the key tag. Record this number in the space provided and use it for reference when obtaining a new key.



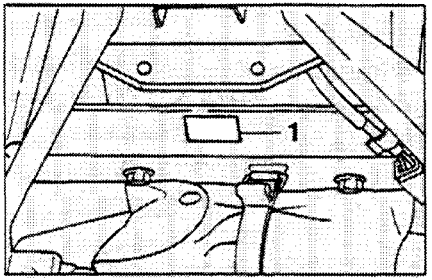
1. Vehicle identification number

Vehicle identification number

The vehicle identification number is stamped into the steering head pipe. Record this number in the space provided.

NOTE:

The vehicle identification number is used to identify your motorcycle and may be used to register your motorcycle with the licensing authority in your state.



1. Model label

Model label

The model label is affixed to the frame under the seat. (See page 3-11 for seat removal procedures.) Record the information on this label in the space provided. This information will be needed to order spare parts from your Yamaha dealer.

Reporting safety defects

If you believe that your vehicle has a defect which could cause a crash or could cause injury or death, you should immediately inform the National Highway Traffic Safety Administration (NHTSA) in addition to notifying YAMAHA MOTOR CORP. U.S.A. If NHTSA receives similar complaints, it may open an investigation, and if it finds that a safety defect exists in group of vehicles, it may order a recall and remedy campaign. However, NHTSA cannot become involved in individual problems between you, your dealer, or YAMAHA MOTOR CORP. U.S.A.

To contact NHTSA, you may either call the Auto Safety Hotline toll-free at 1-800-424-9393 (or 366-0123 in Washington, D.C. area) or write to: NHTSA, U.S. Department of Transportation, Washington, D.C. 20590.
You can also obtain other information about motor vehicle safety from the Hotline.

Motorcycle noise regulation

TAMPERING WITH NOISE CONTROL SYSTEM PROHIBITED:

Federal law prohibits the following acts or the causing thereof: (1) The removal or rendering inoperative by any person other than for purposes of maintenance, repair, or replacement of any device or element of design incorporated into any new vehicle for the purpose of noise control prior to its sale or delivery to the ultimate purchaser or while it is in use or (2) the use of the vehicle after such device or element of design has been removed or rendered inoperative by any person.

"AMONG THOSE ACTS PRESUMED TO CONSTITUTE TAMPERING ARE THE ACTS LISTED BELOW".

These acts include tampering with the following systems; i.e., modification, removal, etc.

Exhaust system	Muffler Exhaust pipe Silencer
Intake system	Air cleaner case Air cleaner element Intake duct

MAINTENANCE RECORD

Copies of work orders and/or receipts for parts you purchase and install will be required to document that maintenance has been completed in accordance with the emission warranty. The chart below is printed only as a reminder to you that the maintenance work is required. It is not acceptable proof of maintenance work.

MAINTENANCE INTERVAL	DATE OF SERVICE	MILEAGE	SERVICING DEALER NAME AND ADDRESS	REMARKS
600 mi (1,000km)or 1 mo.				
4,000 mi (7,000km)or 6 mos.				
8,000 mi (13,000km)or 12 mos.				
12,000 mi (19,000km)or 18 mos.				
16,000 mi (25,000km)or 24 mos.				
20,000 mi (31,000km)or 30 mos.				
24,000 mi (37,000km)or 36 mos.				

MAINTENANCE INTERVAL	DATE OF SERVICE	MILEAGE	SERVICING DEALER NAME AND ADDRESS	REMARKS
28,000 mi (43,000km)or 42 mos.				
32,000 mi (49,000km)or 48 mos.				
36,000 mi (55,000km)or 54 mos.				
40,000 mi (61,000km)or 60 mos.				

YAMAHA MOTOR CORPORATION, U.S.A. STREET AND ENDURO MOTORCYCLE LIMITED WARRANTY

Yamaha Motor Corporation, U.S.A. hereby warrants each new model Yamaha motorcycle will be free from defects in material and workmanship for the period of time stated herein, subject to certain stated limitations.

THE PERIOD OF WARRANTY for Yamaha motorcycles originally equipped with headlight, stoplight, and turn signals shall be one (1) year from the date of purchase, with no mileage limitation.

MODELS EXCLUDED FROM WARRANTY include those used for non-Yamaha-authorized renting, leasing, or other commercial purposes, and TZ models.

DURING THE PERIOD OF WARRANTY any authorized Yamaha motorcycle dealer will, free of charge, repair or replace any part adjudged defective by Yamaha due to faulty workmanship or material from the factory. Parts used in warranty repairs will be warranted for the balance of the product's warranty period. All parts replaced under warranty become property of Yamaha Motor Corp. U.S.A.

GENERAL EXCLUSIONS from this warranty shall include any failures caused by:

a. Competition or racing use.
b. Installation of parts or accessories that are not qualitatively equivalent to genuine Yamaha parts.
c. Abnormal strain, neglect, or abuse.
d. Lack of proper maintenance.
e. Accident or collision damage.
f. Modification to original parts.

SPECIFIC EXCLUSIONS from this warranty shall include parts replaced due to normal wear or routine maintenance.

THE CUSTOMER'S RESPONSIBILITY under this warranty shall be to:

1. Operate and maintain the motorcycle as specified in the appropriate Owner's Manual, and
2. Give notice to an authorized Yamaha motorcycle dealer of any and all apparent defects within ten (10) days after discovery, and make the machine available at that time for inspection and repairs at such dealer's place of business.

WARRANTY TRANSFER: To transfer the warranty from the original purchaser to any subsequent purchaser, it is imperative that the machine be inspected and registered for warranty by an authorized Yamaha motorcycle dealer. In order for this warranty to remain in effect, this inspection and registration must take place within ten (10) days after transfer. An inspection and registration fee will be charged for this service.

EMISSIONS CONTROL SYSTEM WARRANTY
Yamaha Motor Corporation, U.S.A. also warrants to the ultimate purchaser and each subsequent purchaser of each Yamaha motorcycle covered by this warranty with a displacement of 50cc or greater, that the vehicle is designed, built, and equipped so as to conform at the time of sale with all U.S. emissions standards applicable at the time of manufacture and that it is free from defects in materials and workmanship which would cause it not to meet these standards within the periods listed immediately below. Failure other than those resulting from defects in material or workmanship which arise solely as a result of owner abuse and / or lack of proper maintenance are not covered by this warranty.

ENGINE DISPLACEMENT	PERIOD
50cc to 169cc	12,000 km (7,465 miles) or five years, whichever occurs first
170cc to 279cc	18,000 km (11,185 miles) or five years, whichever occurs first
280cc or over	30,000 km (18,641 miles) or five years, whichever occurs first

YAMAHA MOTOR CORPORATION, U.S.A. MAKES NO OTHER WARRANTY OF ANY KIND, EXPRESSED OR IMPLIED. ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE WHICH EXCEED THE OBLIGATIONS AND TIME LIMITS STATED IN THIS WARRANTY ARE HEREBY DISCLAIMED BY YAMAHA MOTOR CORPORATION, U.S.A. AND EXCLUDED FROM THIS WARRANTY.

SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU. ALSO EXCLUDED FROM THIS WARRANTY ARE ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES INCLUDING LOSS OF USE. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE EXCLUSION MAY NOT APPLY TO YOU.

THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE.

YAMAHA MOTOR CORPORATION, U.S.A.
P.O. Box 6555
Cypress, California 90630

WARRANTY QUESTIONS AND ANSWERS

Q. What costs are my responsibility during the warranty period?
A. The customer's responsibility includes all costs of normal maintenance services, non-warranty repairs, accident and collision damages, and oil, oil filters, air filters, spark plugs, and brake shoes.

Q. What are some examples of "abnormal" strain, neglect, or abuse?
A. These terms are general and overlap each other in areas. Specific examples include: Running the machine out of oil, sustained high-rpm, full-throttle, operating the machine with a broken or damaged part which causes another part to fail, damage or failure due to improper or careless transportation and or tie down. If you have any specific questions on operation or maintenance, please contact your dealer for advice.

Q. Does the warranty cover incidental costs such as towing or transportation due to a failure?
A. No. The warranty is limited to repair of the machine itself.

Q. May I perform any or all of the recommended maintenance shown in the Owner's Manual instead of having the dealer do them?
A. Yes, if you are a qualified mechanic and follow the procedures specified in the Owner's and Service Manual. We do recommend, however, that items requiring special tools or equipment be done by Yamaha Motorcycle dealer.

Q. Will the warranty be void or cancelled if I do not operate or maintain my new motorcycle exactly as specified in the Owner's Manual?
A. No. The warranty on a new motorcycle cannot be "voided" or "cancelled." **However, if a particular failure is caused by operation or maintenance other than as shown in the Owner's Manual, that failure may not be covered under warranty.**

Q. What responsibility does my dealer have under this warranty?
A. Each Yamaha Motorcycle dealer is expected to:
1. Completely set up every new machine before sale.
2. Explain the operation, maintenance, and warranty requirements to your satisfaction at the time of sale, and upon your request at any later date.
3. Each Yamaha Motorcycle dealer is held responsible for his setup, service and warranty repair work.

Q. Is the warranty transferable to second owners?
A. Yes. The remainder of the existing warranty can be transferred upon request. The unit has to be inspected and re-registered by an authorized Yamaha Motorcycle dealer for the policy to remain effective.

CUSTOMER SERVICE

If your machine requires warranty service, you must take it to any authorized Yamaha Motorcycle dealer within the continental United States. Be sure to bring your warranty registration card or other valid proof of the original date of purchase. If a question or problem arises regarding warranty, first contact the owner of the dealership. Since all warranty matters are handled at the dealer level, this person is in the best position to help you. If you are still not satisfied and require additional assistance, please write:

YAMAHA MOTOR CORPORATION U.S.A.
CUSTOMER RELATIONS DEPARTMENT
P.O. Box 6555
Cypress, California 90630

When contacting Yamaha Motor Corporation, U.S.A. don't forget to include any important information such as names, addresses, model, V.I.N. (frame number), dates, and receipts.

CHANGE OF ADDRESS

The federal government requires each manufacturer of a motor vehicle to maintain a complete, up-to-date list of all first purchasers against the possibility of a safety-related defect and recall. This list is compiled from the purchase registrations sent to Yamaha Motor Corporation, U.S.A. by the selling dealer at the time of your purchase.

If you should move after you have purchased your new motorcycle, please advise us of your new address by sending a postcard listing your motorcycle model name, V.I.N. (frame number), dealer number (or dealer's name) as it is shown on your warranty card, your name and new mailing address. Mail to:

YAMAHA MOTOR CORPORATION, U.S.A.
P.O. Box 6555
Cypress, California 90630
Attention: Warranty Department

This will ensure that Yamaha Motor Corporation, U.S.A. has an up-to-date registration record in accordance with federal law.

YAMAHA EXTENDED SERVICE (Y.E.S.)

Keep your Yamaha protected even after your warranty expires with genuine Yamaha Extended Service (Y.E.S.).

- Y.E.S. is designed and administered by Yamaha Motor Corporation to provide maximum owner satisfaction. You get uninterrupted factory-backed coverage for extra peace of mind.
- Y.E.S. is flexible. You choose the plan that's right for you: 12 months, 24 months, or 36 months beyond your warranty period.
- Y.E.S. is designed and administered by the same Yamaha people who handle your warranty – and it shows in the comprehensive coverage benefits. There are no mileage limitations. Coverage isn't limited to "moving parts" or the "drive train" like many other plans. And Y.E.S. covers manufacturing defects just like the warranty. See the sample contract at your Yamaha dealer to see how comforting uninterrupted factory-backed protection can be.
- You don't have to pay anything for covered repairs. There's no deductible to pay, and repairs aren't "pro-rated." You don't have any "out-of-pocket" expenses for covered repairs.
- In addition, Travel and Recreation Interruption Protection (TRIP) is included at no extra cost. TRIP gives you up to $150 reimbursement per occurrence for any reasonable expenses you incur because your Yamaha needs covered service: replacement vehicle rental, emergency towing, phone calls, even food and lodging when you are away from home. This superb coverage goes into effect when you purchase Y.E.S., so it applies to any warranty repairs as well as covered repairs during your entire Y.E.S. plan period.
- Y.E.S. coverage is honored at any authorized Yamaha dealer nationwide.
- Y.E.S. coverage is transferable to a new owner if you sell or trade-in. That can make your Yamaha much more valuable!

This excellent Y.E.S. plan coverage is only available to Yamaha owners like you, and only while your Yamaha is still within the Yamaha Limited Warranty period. So visit your authorized Yamaha dealer to get all the facts. He can show you how easy it is to protect your investment with Yamaha Extended Service.

We urge you to act now. You'll get the excellent benefits of TRIP coverage right away, and you'll rest easy knowing you'll have strong factory-backed protection even after your Yamaha Limited Warranty expires. You can also save money: Y.E.S. costs less within the first 90 days after you buy your Yamaha. See your dealer today!

A special note:
If visiting your dealer isn't convenient, contact Yamaha with your Primary ID number (your frame number). We'll be happy to help you get the Y.E.S. coverage you need.

Yamaha Service Marketing
P.O. Box 6555
Cypress, CA 90630

YAMAHA EXTENDED SERVICE

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YAMAHA MOTOR CORPORATION, U.S.A. STREET AND ENDURO MOTORCYCLE LIMITED WARRANTY 9-7

PROTECT YOUR INVESTMENT

se Genuine YAMAHA Parts And Accessories

See your Authorized YAMAHA Dealer for a Genuine YAMAHA Service Manual.

YAMAHA

AMAHA MOTOR CO., LTD.

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